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CLINICAL PHYSIOLOGY—AN OPPORTUNITY AND A DUTY

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The time has come for the formal recognition of clinical physiology as a distinct subject and a field of work of the first importance. More or less inchoate, more or less dimly recognized, it already exists. The function which I wish to assume toward it to-day is rather that of a priest at the christening than that of a midwife at the birth of this latest-born and most neglected of the family of the medical sciences. I wish to give it the distinction of a name.

In the progress of medicine during the past decade, no feature has been more striking than the rapidity with which the advances in theoretic knowledge made in the laboratories of pathology and bacteriology have been adapted to the uses of clinical medicine. Physiology, on the contrary, has to a large extent led a life of mere self-development—like a proud virgin, beautiful, cold and sterile. I know that I risk the vigorous dissent of other physiologists in making this criticism. But I believe that it is needed not only for the good of medicine but for the best interests of physiology itself.

Science uncontaminated by any contact with the practical business of the world has in recent years been extolled in many an eloquent period. Priceless in their practical results have been the investigations made by great thinkers with no practical end in view. Nevertheless, I hold that none of the sciences, certainly none of the medical sciences, can long remain wholly divorced from contact with practical aims and yet continue fertile.

The appeal of clinical physiology is both to physiologists and to clinicians. Physiologists now and in the next few years will find their richest and most fruitful problems in the field of clinical, rather than in that of purely abstract, physiology. In the golden age of physiology our great predecessors, Claude Bernard, Brown-Séquard, Marey, Ludwig, Fritsch and Hitzig, and many others worked at topics which were at that time essentially problems of clinical physiology. Where in the literature of their day will you find anything to compare in ineptitude with the ponderous discussion of the mathematics of a membrane manometer, on which some of their successors in Germany now spend their time? Had not Voit's life work on nutrition a broadly utilitarian object? Was not Bernard working at the problem of diabetes when he discovered glycogen? And at animal heat with the problem of fever in mind, when he found the vasomotor nerves? We have dug enough ore from the depths for the present. Let us devote ourselves for a time to extracting some of the gold which it contains.

To clinicians in nearly all departments, physiology offers to-day a brilliant opportunity. The progress of medicine in overcoming the secrets of disease is like the siege of a walled city. The clinicians are the infantry. The laboratory workers are the sappers and miners, the heavy siege artillery and the aviation corps. It is useless to hurl infantry against an unbroken wall. When, however, a mine has been sprung or a bastion battered down, then is the time when good generalship will lead the infantry to the assault through the breach and over the fallen ramparts. The great breaches of the past few years, into which the infantry have stormed, have been those opened by pathology and bacteriology. Meanwhile physiology has not been idle. It has burrowed under and overthrown many of the strongest towers. What is needed now is the massed assault of the infantry. In simple words, there is in physiology to-day a great mass of knowledge and a wide range of methods readily adaptable to clinical uses and needs. If clinicians will acquaint themselves with this knowledge, and adopt, adapt and employ these methods, they will be able to march rapidly over obstacles now insurmountable.

Such a development of clinical physiology might well be the greatest event in the progress of medicine during the second decade of the twentieth century.

What the entire volume of clinical physiology should be in the future may most easily be shown by instancing such of its chapters as might be written even now. Such a chapter might be written about the clinical use of the sphygmomanometer, the significance of its measurements and the conceptions of circulatory functions which center in it. How valuable are these conceptions and measurements I need not emphasize before this audience! That which should be emphasized is the fact that physiologists began measuring blood-pressure in millimeters of mercury more than half a century ago; yet the clinical modification and utilization of the method is a matter of yesterday—perhaps I should rather say of to-day, or even to-morrow. Thus, by this example, it takes at least fifty years for a physiologic conception or method to find its way from the laboratory to the clinic. Many pathologic and bacteriologic methods complete the arduous journey in as many weeks.

It is only five years since I had the pleasure of attending a meeting of the British Medical Association at Toronto and of sitting in a great hall packed with clinicians, listening with open-mouthed interest to the wonderful news that the blood was under pressure in its vessels, that the pressure could easily be measured and

* Chairman's Address before the Section on Pathology and Physiology, at the Sixty-Second Annual Meeting of American Medical Association, held at Los Angeles, June, 1911.

that such measurements have a meaning. On this occasion a number of eminent authorities who had crossed the broad Atlantic, or traveled thousands of miles from the four quarters of Canada and the United States for this special purpose, thought it necessary to explain in words of one syllable how the heart pushes the blood through the arteries and how this pressure is measured by the raising of mercury in a tube of glass. Then arose one most eminent in authority who informed the audience in effect that using an instrument for such a purpose was all "bosh." For himself, he believed that the "tactus eruditus of the trained finger" told any competent physician or surgeon all that he needed to know!

I suppose that no one, however eminent, would dare make such an assertion to-day. We do not now have to explain what arterial pressure is. But turn for a moment from the clinical aspects of the circulation to those of respiration. Here is a function of the first importance; a function subject to manifold alterations in health and disease; easy to observe, relatively easy to measure; a function about which physiologists have locked in their laboratories a considerable amount of information. Yet look through all the hundreds of well-appointed hospitals between Los Angeles and Eastport in the state of Maine; look in all the elaborately equipped consulting rooms of all our eminent internists. Where will you find an instrument for anything more than the crudest observation and measurement of respiration? Nowhere, I believe! What do the clinicians of to-day—even the most learned—know of respiration? Next to nothing! And this little is mostly wrong.[1] If a patient pants for breath do not most of them order as many gallons of oxygen as his purse will allow to be blown off somewhere in the neighborhood? As well might they burn so many Chinese prayers printed on rice paper—except that it is profitable for the concern that supplies the oxygen. If, on the contrary, a patient's respiration is failing, oxygen may likewise be ordered; and a grim humor attaches to the fact that this oxygen, in order to comply with the requirements of the Pharmacopeia, has been carefully freed from every trace of carbon dioxid—the one substance which might act for a time to restore the respiratory center to its normal activity. Great is the medicine of to-day in its knowledge of man's parasites; great in its acquaintance with the appearance of his tissues after he is dead. But do we not lack an adequate comprehension of the functions of man himself, and a control of the working of the machine while, although somewhat damaged, it is still a "going concern?"

I am convinced that the now unutilized opportunities which modern physiology offers are so promising that any capable and well-trained physician or surgeon, if he will but take the trouble to acquaint himself with some one line of the subject—say respiration for example—and to work at it in connection with his practice, may make a notable contribution to practical medicine. What can be done in many lines may best be shown by instancing what has been done in a few. Consider the work of James Mackenzie, at first only a country doctor. With no better opportunities for work than a rural practice afforded he took the sphygmograph and applied it clinically. To-day his work on the application of graphic methods to the clinical study of diseases of the circulation stands as one of the finest chapters of clinical physiology.

The electrocardiogram is affording a similar opportunity for advancement in the clinical physiology of the heart, an opportunity which fortunately a number of internists in this country have seen and utilized. The new work of Hirschfelder of the Johns Hopkins School on diseases of the heart and aorta is throughout essentially a treatise in clinical physiology.

On the side of surgery one of the most brilliant events of the past few years has been the development of methods allowing a ready access to the interior of the thorax. The work of Sauerbruch and Brauer, and of the other surgeons who have worked in this field, is a striking example of the profitableness of clinical physiology. So also is the work of Crile on surgical shock, and that of Cushing on the functions of the pituitary gland, normal and abnormal.

In a similar manner I might illustrate the sort of work which I believe that physiologists ought to do by examples of what some have done. Here may be mentioned the work of Erlanger on heart-block; of Cannon, not only on the normal movements of the stomach and intestines, but also on those after the performance of gastro-enterostomy, and of Meltzer in developing intratracheal insufflation from a method of mere laboratory interest into one which may prove of the greatest clinical utility.

All of these illustrations are drawn from the physical side of physiology. The physiologic chemists of to-day would easily afford ten times as many examples. In fact, the greater part of the flood of work which at present is almost swamping the journals of physiologic chemistry is essentially of this, to my mind, the right sort. It is directed to the solution, not of mere esoteric problems, but of topics of broad and pressing medical and human interest—diabetes, metabolism in disease as well as in health, and to those problems of nutrition which are of such tremendous import for the welfare of mankind.

It was a fortunate day for medicine when Emil Fischer turned his attention to the proteins. Almost at a stroke he lifted the pure and esoteric problems of biochemistry to a plane on which the great majority of chemical physiologists are incapable of working. Only a specially trained organic chemist can do this work. So our chemically-minded brethren, greatly to the profit of medicine and of their own scientific fortunes, have been forced to devote themselves to the cultivation of fields which will bear and are richly bearing fruit for to-day and to-morrow, rather than to that deeper ploughing and sowing from which the slow-growing harvest will indeed be of priceless value, but chiefly for generations yet unborn.

For the development of clinical physiology in America three conditions seem to be of special importance:

1. Internists and surgeons, and especially the professors of medicine and surgery in our medical schools, must be more interested, better trained and more widely read in physiology. It were better if they read less in the clinical and more in the scientific journals; better if they talked and practiced less, and investigated a great deal more.

2. Physiologists must assume the duty of teaching not only normal but also abnormal physiology. Both, in my opinion, should be taught in the second year of the medical course and as successive parts of one and the

1. So far as I am aware, the first paper ever written by an American clinician, based on a study of respiration in disease by precise physiologic methods, was presented as the oration in medicine at this meeting of the American Medical Association by Dr. C. F. Hoover

same subject. We cannot leave this for the pathologists to do. A man trained by autopsy and microscope is inevitably a morphologist. Just in proportion as he is fitted to deal with morphologic processes, he is unfitted to handle and expound functions of a physical nature—unless, of course, he happens to be an all-around genius.

3. Finally, I hold that in the future students who are being trained to be physiologists, whether in the field of physical and nervous or of chemical physiology, ought to have the M.D. degree. In our better medical schools the improvement of the curriculum in the last few years has been so marked that even the clinical courses have, to a great extent, lost that deadening influence on the students' ability to think scientifically which they formerly exerted. Furthermore, the elasticity introduced into the curriculum by the elective system, as practiced at Harvard and at Johns Hopkins, affords opportunities for the student who plans to be a physiologist to take little of what he will not need and to devote himself largely to his special interests.

I do not regard the Ph.D. degree alone as insuring a sufficiently broad training for a physiologist, either in the chemical or physical line. It is true that many American physiologists are merely doctors of philosophy. I am such myself. But I know, by the sad experience of years wasted in filling in the gaps in an utterly insufficient technical training, how great a handicap this is. Any doctors of philosophy who profess a different view I am compelled to regard as like the fox in the fable who lost his tail. If they, like this cunning animal, claim that a condition of taillessness is an advantage, I would like to warn all the young physiologic foxes to beware. Grow a good bushy tail in the form of an M.D. after your name, and let no tailless old fox beguile you out of growing it.

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SPINAL FRACTURES

OPINIONS BASED ON OBSERVATIONS OF SIXTEEN OPERATIONS *

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OMAHA

There are no graver injuries than fracture of the bony structures of the spinal column. No class of fracture presents more difficult problems for solution. In none is there greater uncertainty as to diagnosis, management and ultimate outcome.

Surgeons who have had a considerable experience with spinal fracture have not become wildly enthusiastic as regards treatment and prognosis. If a surgeon has operated frequently, he has learned that a fracture dislocation usually causes a partial or complete division of the cord, and that complete recovery is extremely rare. He may count a considerable number of operative recoveries and some patients who have regained a partial functional activity, but complete restoration of function is uncommon.

However, when we carefully review our cases and consider the extensive destruction of the cord in a large percentage of instances and the long periods of delay that are only too common before active interference is resorted to, and again when we recall the unusual handling of many cases of spinal fracture, while being transported home or to the hospital, often increasing the bony displacement and cord compression and augmenting the laceration of meninges and spinal vessels, it is not strange that our results are no better.

I desire to record briefly my personal experiences with injuries to the spinal column. During a period of thirty years there have come under my observation forty-two cases of spinal injury that involved the bony structures of the spinal column, as shown by spinal deformity and complete motor and sensory paralysis of all the structures below the seat of fracture. In this number are included all that I have examined as my own cases and those that I have seen in consultation with other practitioners. Of this number only sixteen have come to operation. In the light of our modern conceptions of the surgical treatment of compression fractures, too many of these have been allowed to be unoperated on. And yet those of us who have witnessed much of accident surgery and particularly of spinal fractures, and have learned to know of the severe crushing of the cord and its membranes in a large percentage of cases, understand too well the hopelessness of the greater number of them. Not only are surgeons not enthusiastic about spinal operations, but the laity is loath to give its consent, owing to the well-known uncertain prognosis. You and I have been compelled to admit that the final outcome is uncertain when we advise a laminectomy as the only chance. We cannot even give an approximate estimate as to the prospects. We have no means of knowing how extensive is the traumatism to the cord and its envelopes. We are fairly certain, in a given case of deforming fracture with paralysis, that the cord is certainly damaged and still we cannot ascertain, with certainty, if it is compressed or lacerated or completely divided. It may be fair to assume that the cord is completely divided where there is a pronounced angular deformity and complete motor and sensory paralysis, and yet moderate cord injury has been found with extreme posterior angular deformity. We may say that the spinal deformity does not always indicate the extent of the cord injury. Consequently we have to deal with an uncertainty. I have met with cases in which there was no spinal deformity and yet there existed complete paraplegia and a laminectomy demonstrated actual cord destruction. And again I have examined one case of marked posterior lumbar deformity causing complete paraplegia immediately after the accident with entire relief of paralysis after traction had been made on head and pelvis and a partial restoration of the deformity by digital pressure. The patient was able to walk about in spite of marked angular deformity. Between these two extremes we have every variety of clinical picture presenting a great array of traumatisms that are often at variance with the physical findings. The traumatisms may amount to a simple transient concussion or may consist of a complete division of the cord. Unfortunately the vast majority of fracture dislocations have produced partial or complete cord division. In my operative work complete division occurred in the greater number of cases and in none of them, with the exception of an occasional temporary improvement, did I see a patient completely recover. We were convinced that recovery of these cases was absolutely impossible. Practical experience and experimental research seemed to indicate that the spinal cord never regenerated until the publication of Hart and Stewart's case[1] of severed cord in the dorsal region operated on by them in 1901. We had been taught by Ludwig, Wiesman, Ballance and others that

* Read in the Section on Surgery of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

1. Tr. Am. Surg. Assn., 1902, xx.

ganglionic non-neurilemmatous nerve cells once destroyed never regenerated, that a complete division of the cord, at any point between the atlas and twelfth dorsal vertebra, was hopeless, because in this part of the cord, the cell elements were non-neurilemmatous. We had learned that regeneration was possible only in the cauda equina and in the spinal nerve roots external to the cord which meant that, when improvement did take place, it was due to the nerve anastomoses between the spinal segments above and below the injury. All experimental research seemed to coincide with clinical observations that a divided spinal cord never underwent complete anatomic and physiologic restoration, that we were quite unprepared for the report of Hart and Stewart's case. They had done a myelorrhaphy in a cord divided by a bullet and, while the outcome was not a complete restoration of function, the result seemed to indicate, at least, a partial regeneration of the cord and we began to have some doubts as to our well-fixed convictions regarding regeneration.

This observation was sufficient, however, to awaken the hope that there was some error in the experimental findings of the workers in this field. More recently Estes has reported two cases of resection of a completely divided cord where a myelorrhaphy had been done, with marked improvement in both cases, so that spinal fractures are apparently not as hopless as past experience seems to indicate. Later observations of these reported cases show that recovery was not complete in any of them; while improvement was marked and gratifying to a certain point, motion and sensation did not become normal and we are obliged to admit that, after all, these cases have not changed our scientific knowledge and that the non-neurilemmatous elements of the cord do not regenerate and the improvement must be attributed to the extra-spinal nerve anastomoses.

The important problem consists in determining what to do in a given case. We have to do with a part of the human anatomy that seems to have been provided in its construction, with every safeguard to prevent injury; a column made up of short, strong, bony segments held together by tremendously strong ligamentous and muscular bands; a flexibility secured by three antero-posterior curves, a series of twenty-four ribs insuring a wonderful lateral support. It is clear that a tremendous force, either direct or indirect, is necessary to effect a fracture.

We have learned that direct violence often produces a simple fracture, which means fractures of the transverse processes, the laminæ, pedicles and spinous processes and sometimes the bodies. These fractures sometimes cause comparatively trivial disturbances, which occasionally consist only of an irritation of spinal nerve roots and at other times extensive cord destruction with complete paralysis of motion and sensation due to pressure of bony fragments or hematomas and later to transverse myelitis. The clinical manifestations are so variable that the diagnosis is often only a matter of speculation.

Indirect violence producing forcible bending forward, is caused often by the falling of weights on the back while working in a stooping position (like a coal miner, where masses of coal fall from the ceiling of a mine), producing comminuted and complicated fractures. They are attended by extensive laceration of muscles, ligaments, cord envelopes, spinal nerves, and the cord itself and considerable hemorrhage. The vertebral bodies may be crushed, the pedicles fractured, the bone fragments are usually displaced and there exists the inevitable cord lesion usually complete division and the nature of the injury appears quite clear. But let us for a moment consider the average spinal injury.

We are presented with a recent case. We are informed as to the nature of the accident, direct or indirect violence. There is immediate and complete motor and sensory paralysis below the point of injury. There may or may not be a posterior angular deformity, or one or more movable spinous processes, the local pain may be intense or mild or absent. There may be severe lancinating pain in the course of the spinal nerves, springing from the seat of injury or immediately above it. Tendon reflexes may be exaggerated, enfeebled or absent. Now we ask ourselves what structures are damaged? We may be certain that there is cord compression, but can we be certain whether the pressure is due to bone fragments or to hematorrhachis or hematomyelia? If we see the case at a later period, a few days or a few weeks or months later with the same train of symptoms to which have been added the following, the bladder and anal sphincters are paralytic if the lesion is high, there may be priapism; pain at seat of injury may have increased and may have become lancinating and peripheral; trophic changes are unmistakable and vasomotor disturbances are marked. There are secretory changes in the skin, ankle-clonus and planter reflexes uncertain. Babinski's sign, although absent in early cases, may have developed. Now, are we certain of the exact nature of the injury? It is true that we are fairly certain in the presence of the clinical picture containing the greater number of the above symptoms, that we have a grave injury to the cord. But in the present light of our knowledge, we cannot state with certainty whether we have compression or a partial or complete division of the cord.

In dealing with spinal fractures, especially those that we have operated on, it was possible in the majority to state that the cord was injured, but it was not possible to know to what extent before the spinal canal was opened. In some, where a destruction of the cord seemed certain, the operation disclosed a large clot pressing on the cord and in others where one or two spines were depressed, a laminectomy revealed pressure but no destruction, and again in the presence of moderate deformity a single sharp fragment had caused extensive meningeal and cord laceration. In one case with a marked posterior angular deformity involving the sixth, seventh and eighth dorsal vertebræ and complete and immediate motor and sensory paralysis, a complete destruction of the cord, at point of injury, seemed certain. It was found, on opening the spinal canal, that the cord was compressed but not destroyed. No visible lesion could be made out. A laminectomy was done and a complete restoration of motion and sensation ensued. Now in the presence of this wide discrepancy between clinical and anatomic findings, what are we to do? I have wavered between the extremes of non-interference on the one hand and operative intervention in all cases of spinal injury whose chief clinical manifestation was paraplegia. It has been difficult to carry out the latter plan in practice, partly on account of the deeply rooted prejudice of the laity against operations, owing to the well-known high mortality in spinal fracture, and the uncertainty of the outcome after surgical interference. Then the surgeon himself had to confess that a spinal injury with paralysis and no deformity does sometimes recover. In cases where there may have been a concussion with no tissue destruction, recovery may occur in a few hours or days. There may have been an extra

dural clot which may have become absorbed, and restoration of function may be complete in a few days or weeks.

There seems to exist much uncertainty with individual operators as to what is best to do. Very few or no surgeons can count their spinal operations by the hundred, and to lay down positive working rules for our guidance may be hazardous and yet we have several unmistakable indications that we cannot ignore. When carefully studying only a part of the published cases, we find that all operators must agree as to the uncertainty of the anatomic findings in most cases, especially where undoubted deformity exists. There may be an extensive osseous lesion with little or no cord destruction, or an apparently limited bony lesion and much cord destruction. We all agree that the osseous lesion is no guide to the extent of the intraspinal condition.

Now in view of this uncertainty there appears only one thing to do and that is to open the spinal canal in all cases of spinal injury with deformity and paralysis. Do an exploratory laminectomy. Accurate asepsis and exact surgical technic have made operative intervention a safe procedure. It should be done immediately and if possible as near the place of accident as can be. Much damage can be done while the patient is being transported. Rough handling or long continued jolting over a rough road can increase the vertebral displacement, augmenting a pressure or a laceration, increasing the damage and thereby changing a curable to an incurable condition. I have known of at least one case in which this occurred, as will be noted in the following record of cases with operations. Delay is usually dangerous. While there are recorded some cases in which later operation was done for compression of the cord, they are the exception. Many patients have been operated on after lapse of weeks and months, who were not benefited on account of degeneration of the cord though the initial lesion consisted solely of compression. Therefore it would seem that the best practice is to open the spinal canal as soon as the diagnosis is made; delay in actual cord injuries is not advisable on account of the liability of early degeneration of cord elements.

I have attempted to arrange my cases under the following heads:

1. Contusion of the cord due to a momentary pressure of a fracture of one or two laminæ, where the spinal arch springs back into place almost instantly causing paralysis but leaving only moderate external deformity—in some instances a movable spinus process.
2. Compression in the presence of non-reforming fracture due to hemorrhage in the spinal canal (hematorrhachis).
3. Compression due to hemorrhage both on and in the cord (hemorrhachis, hematomyelia).
4. Compression without destruction of cord elements.
5. Partial destruction of the cord at the seat of injury.
6. Total destruction of the cord at the seat of injury.

The following cases are not arranged in the order in which they came under observation but according to their pathologic findings. Only those that came to operation appear. No cases of concussion or shock of the spinal cord are here recorded; only those are discussed in which the clinical findings indicated a fracture of the osseous structures.

1. Contusion of the cord due to a momentary pressure of a fracture of one or two laminæ, where the spinal arch springs back into place almost instantly, causing paralysis but leaving only little external deformity, in some instances a movable spinous process.

Under this head we will find two cases.

CASE 1.—A. B., aged 45, laborer, while occupied in the construction of a building, fell from the second to the first floor striking on his back. He was picked up unconscious and carried to his home a few blocks away. He regained consciousness in a few hours, but found himself paraplegic from the nipples down.

Examination.—I saw him ten days later at the M. E. Hospital. There was found complete abolition of motion and sensation from the nipple line downward. There was no control of the sphincters. The sixth dorsal spine was found to be freely movable.

Operation.—An operation was advised and quickly agreed to. A trap door skin incision and blunt separation of the muscular and ligamentous structures exposed the spines and laminæ of the fifth, sixth and seventh dorsal vertebræ. The sixth spine was loose and it was removed. The laminæ of all the vertebræ seemed firm and not depressed. On close examination, however, the left lamina of the sixth vertebra showed a fissure and the bone was slightly depressed. The lamina was removed with a chisel. The meninges appeared thickened with a hemorrhagic infiltrate extending slightly into the cord. The parts were gently flooded with normal salt solution, clearing away much of the infiltrate. It appeared that the lamina on one side was fractured and had been crowded down on the cord, then instantly sprung back into its normal position. There was very little tendency for the incised meningeal margins to separate and no suture was used. The wound was closed.

Result.—There was gradual return of sensation of motion in the course of two months, so that he was able to leave the hospital, walking well, with crutches.

CASE 2.—C. A., laborer, aged 40, fell from a wagon, striking on his back. There was temporary mental confusion but no unconsciousness. He was unable to move. When assistance arrived, it was found that he could move his arms fairly well but his lower extremities had lost all movement and sensation.

Examination.—I saw him at his home, four weeks after his injury. All sensation and motion absent below the ensiform appendix, both sphincters incompetent. A bed sore on the sacrum. The fourth and fifth dorsal spines were movable and manipulation was painful.

Operation.—(At home.) The spinal canal was opened as in the preceding case. The spines together with the lamina were easily removed after dissections of the soft parts. It was found that the laminæ were not compressing the cord, but evidentally had momentarily done so. There was a hemorrhagic infiltrate in the meninges and slightly in the cord and several small clots between meninges and laminæ. Flooding with normal salt solution and careful swabbing, cleared the field fairly well. Several sharp bone spiculæ were clipped away. Meninges not sutured. The wound was closed.

Result.—There was gradual return of sensation and motion. In a year, with the aid of a cane, he was walking.

The foregoing two patients might possibly have recovered without operation, but it was impossible to estimate the extent of the lesion before the spinal canal was opened.

2. Compression in the presence of non-deforming fracture due to hemorrhage in the spinal canal. (Hematorrhachis.)

There was only one case of this nature.

CASE 3.—F. D., farmer, aged 35, fell from a hay-loft a distance of about ten feet, falling on his back. There was complete motor paralysis when he was found an hour later. Sensation was diminished but not absent. It disappeared, however, in 24 hours.

Examination.—I saw him ten days later at his home where all preparation for an operation had been made. The patient stated that he did not become unconscious at the time of the accident. And he thought, but was not absolutely certain, that he could move his legs for a few moments, but that he did not try again on account of the great pain in the back. All sensation and motion were absent below the epigastrium;

there was very little sphincteric control. There was much ecchymosis over the middorsal region, but no evidence of vertebral fracture. Considering that compression was apparently not instantaneous and the absence of deformity, we concluded that we had to deal with a hematorrhachis.

Operation.—The patient was anxious for an operation. Accordingly the spinal canal was laid open by removing the laminæ of the sixth and seventh dorsal vertebræ. A large, rather firm blood-clot was found; it was extradural and was partly picked away with an anatomic forceps and partly washed away with a stream of normal salt solution. The cord coverings were found uninjured. The wound was closed.

Result.—The operative recovery was uneventful. Sensation and motion gradually returned. In a year he was able to walk fairly well with a cane.

3. Compression due to hemorrhage both on and in the cord. (Hemorrhachis, hematomyelia.)

Under this head there were two cases.

CASE 4.—M. S., farmer, aged 32, fell from a tree, striking the back, middorsal region. He was found half an hour later, with complete paralysis of both lower extremities.

Examination.—I saw him a week later. Complete paraplegia. No sensation or motion below nipple line. Sphincters paralytic. Much tenderness over the third, fourth and fifth dorsal vertebræ. Spines slightly movable and depressed.

Operation.—The spinal canal was opened; the laminæ were pressing on the cord. They were removed. An extradural clot was found, the meninges seemed contused. The longitudinal incision exposed the cord and more blood-clots beneath the dura which appeared to occupy a part of the cord itself. They could not be all washed or swabbed away. The meninges were not sutured. The wound was closed.

Result.—The patient died in one week, apparently from meningitis.

CASE 5.—D. F., bricklayer, aged 40 years, fell from a scaffold striking his back on some bricks, and became unconscious. He was removed to his home, regained consciousness in a couple of hours, having lost motion and sensation from the costal arches down.

Examination.—I saw him about ten days later. There was complete absence of motion and sensation below the costal arches. Both sphincters were incompetent. There was a slight depression over the seventh and eighth dorsal vertebræ.

Operation.—The spinal canal was opened; the laminæ of the seventh and eighth dorsal vertebræ were removed. The findings were similar to those in the preceding case.

Result.—The patient made a good operative recovery but died two months later, with no improvement in motion or sensation.

4. Compression without destruction of cord elements.

Under this head we had one case.

CASE 6.—M. J., laborer, aged 36. While engaged about a building during the course of construction, a beam fell, striking him across the shoulders, doubling him forward. He was picked up unconscious. Four hours later, when consciousness recurred, he found himself paraplegic.

Examination.—I saw him about two weeks later. Temperature 103 F. Pulse 130. Paraplegic. He complained of great pain in his back. I found distinct posterior angular curvature, sixth, seventh and eighth dorsal spines prominent.

Operation.—An immediate laminectomy was done. The meninges and cord were apparently uninjured. The meninges were incised but the cord was found normal; two catgut sutures closed the coverings. The wound was closed and dressed. A plaster cast was applied with aid of a Bradford frame.

Result.—The operative recovery was uneventful. There was gradual improvement. At the end of six months he could walk with a cane.

5. Partial destruction of the cord at the seat of injury.

Under this group there were four cases.

CASE 7.—O., farmer, aged 30, while diving into a shallow swimming hole, struck his head on the bottom, he was helpless immediately and it was with difficulty that he was rescued by his companions. All his extremities were paralyzed, the upper as to motion and the lower as to motion and sensation.

Examination.—He was brought to the M. E. Hospital ten days later. There was absence of motion in both upper extremities and partially as to sensation. In the lower extremities and trunk, there was no motion nor sensation. Bladder and rectal sphincters were incompetent. The neck was stiff, movements caused pain. A skiagram indicated a fracture, displacement of the fourth and fifth cervical vertebræ.

Operation.—Through a longitudinal incision, the loose laminæ were easily removed after the soft parts had been dissected off. The dura was lacerated by the sharp, fractured laminæ. The posterior columns were partly torn. After cutting away the lacerated tissues, the wound was closed.

Result.—Operative recovery was uneventful. He gradually regained sensation and motion, first in the upper extremities, then partially in the lower extremities. One year after the accident, he was able to stand on his feet but not to walk. He was able to get about in a wheel chair.

CASE 8.—S. P., aged 40, brakeman, fell from the top of a box car, fracturing the laminæ of the fourth and fifth dorsal vertebræ, causing complete paraplegia.

Operation.—He was seen twenty-four hours after the accident. Laminectomy revealed torn meninges, a destruction of the left lateral half of the cord. Torn tissues were trimmed with scissors. The wound was closed with silk-worm gut drain.

Result.—The patient died one week after operation, from meningitis.

CASE 9.—P. D. H., aged 29, brakeman, fell between two standing freight cars, striking the lower dorsal region on the rail. There was immediate and complete paraplegia.

Operation.—He was seen the day of the accident. I performed laminectomy of the seventh and eighth vertebræ. Partial destruction of the posterior columns was found. The lacerated structures were trimmed with scissors. Irrigation. Closure of wound. Silkworm gut drain.

Result.—There was recovery from the operation but no improvement, and he died in six weeks.

CASE 10.—F. J., laborer, in a runaway, was thrown from his wagon, falling on his back. Immediate paralysis of both lower extremities resulted.

Operation.—When I saw him, about a week later, the ninth and tenth dorsal spines were movable. Laminectomy showed lacerated membranes and destruction of posterior columns. After removal of lacerated tissues and irrigation, the wound was closed. Chromic gut drain.

Result.—Operative recovery. For two months there was return of sensation, then he rapidly became worse and died ten weeks after his operation.

6. Total destruction of the cord at the seat of injury.

Under this head there were five cases of fracture and one a gunshot wound with complete division of the cord. None of these patients recovered. All died in periods varying from one week to eight months. In none of them was there improvement in sensation or motion. Four of them developed large bed sores. Death seemed to be due to gradual exhaustion, emaciation, and sepsis that apparently originated in the bed sores. One patient, with a marked posterior angular middorsal deformity and complete transverse destruction of the cord, died one week after his operation.

One patient, in whom a gunshot wound fractured the lamina of the sixth dorsal vertebra and lodged in its body, completely dividing the cord, lived four months.

CASE 11.—C. D., aged 32, a coal miner. While at work, a mass of coal fell on his back, bending him forcibly forward. When removed from the mine, he was completely paraplegic.

Operation.—I saw him about five weeks later. Laminectomy of eighth, ninth and tenth dorsal vertebræ. Cord crushed.

Lacerated tissue was trimmed away leaving a defect of one-half inch. Suture of the ends of the cord was attempted but failed. Wound closed. Chromic gut drain.

Result.—Death in three weeks.

CASE 12.—J. D., aged 31. While at work in a stone quarry a stone fell on his back, striking the lower dorsal region. He had great pain at seat of injury. When picked up a few moments later, he was conscious and he stated that he could move both feet, although they felt numb. While being lifted into a wagon he received a severe jolt, and his legs at once became paralyzed. He was positive that the jolt caused the motor paralysis. He was taken to his home where I saw him the following day.

Operation.—A laminectomy, tenth and eleventh dorsal vertebræ, disclosed a complete destruction of the cord. Whether the laminæ were driven inward by the stone or by the jolt may be an open question. The laminæ, no doubt, were fractured by the stone, but it was probable that the dislocation of the laminæ was increased by the rough handling. The sharp fragments divided the cord. A curable patient was made incurable. After the torn fragments had been cut away, suturing with chromic gut was attempted but was not satisfactory, because the consistency of the cord was not firm enough to hold the suture. Wound closed as usual.

Result.—The patient died a week later.

CASE 13.—J. J. S., laborer, aged 27, was struck in the back of the neck by a falling tree, causing immediate paralysis, complete of legs, partial of arms.

Examination.—I saw him four days later. Tenderness was pronounced over the fifth and sixth cervical vertebræ. The skin was discolored at this point. The spines were movable.

Operation.—A laminectomy revealed a crushed cord to the extent of an inch. The wounds were treated in the usual manner.

Result.—Patient died ten days later.

CASE 14.—J. R., aged 28, clerk, was shot in the middorsal region, causing immediate motor and sensory paralysis from the costal arches down.

Operation.—Laminectomy of the fifth and sixth dorsal vertebræ. The cord had been cut by the bullet, which was deeply embedded in the vertebral body. The cord defect was cleansed from blood-clots and lacerated tissue. Wound closed.

Result.—The patient made an operative recovery, but died four months later from exhaustion and sepsis due to a very large bed sore on the sacrum.

CASE 15.—G. M., coal miner, aged 50. A mass of coal separated from the roof of a tunnel, falling on his back. When rescued by his co-laborers, it was found that his lower extremities had lost both motion and sensation.

Examination.—Two weeks later, when I saw him, paraplegia was complete. There was a distinct posterior angular deformity in the lower dorsal region over the tenth and eleventh vertebræ.

Operation.—Laminectomy disclosed fractured laminæ complete, laceration of the cord and crushed vertebral body, the tenth dorsal. It was not possible to correct the spinal deformity by either extention or pressure. The ragged cord ends were trimmed and the wound closed.

Result.—The patient died in four weeks, showing no improvement.

CASE 16.—D. S., farmer, aged 35, fell down a flight of stairs. He found it impossible to get up. After being put to bed, it was discovered that he had lost both motion and sensation.

Examination.—About one week later he was brought to the M. E. Hospital. He was found to be paraplegic. The fifth dorsal spine was movable, there was much pain in this region.

Operation.—Laminectomy. The fifth and sixth laminæ were removed, the meninges were contused. The latter were opened and the cord was found to be pulpefied. Wound closed in the usual manner.

Result.—Operative recovery was uneventful. He died from exhaustion and septic absorbtion from a large bed sore two months later.

SUMMARY

We had two cases with a contusion of the cord due to momentary pressure of one or two laminæ, where the spinal arch sprang back into place instantly, leaving no permanent cord destruction. One patient recovered both motion and sensation, walking out of the hospital in three months. The other was able to walk with the aid of a cane at the end of a year.

There was one case of compression in the presence of non-deforming fracture due to hemorrhage in the spinal canal. In one year he was able to walk fairly well with the aid of a cane.

Two patients were operated on in whom there was compression of the cord due to hemorrhage on and in the cord. One died one week after the operation, the other two months later with no improvement.

There was one case with paralysis due to compression of the laminæ of the sixth, seventh and eighth dorsal vertebræ without cord or meningeal injury. Recovery. This patient could walk with a cane in six months.

Four patients were operated on who had a partial destruction of the cord at the seat of injury. One improved so that he was able to stand on his feet after a year; there had been complete paralysis of all four extremities due to a fracture dislocation of fourth and fifth cervical vertebræ. Another patient died six weeks after a laminectomy of the seventh and eighth dorsal vertebræ. The third died ten weeks after the removal of the ninth and tenth dorsal vertebræ.

From the record of cases we note that no patient with complete transverse division of the cord was either temporarily or permanently benefited. All such patients died either from extreme trophic changes and exhaustion or from septic infection from the large bed sores.

ABSTRACT OF DISCUSSION

DR. H. W. HOWARD, Los Angeles: I shall not attempt to discuss this paper as a whole, but barely to emphasize the plea for early operation, believing that therein lies the only hope of relieving these poor unfortunates. It seems true that in the majority of cases in which the symptoms of severe injury of the cord have disappeared or greatly improved after operation, we are dealing rather with a compression than with total destruction of the cord. Still it has been proved beyond a doubt that regeneration of nerve fibers does take place in certain cases. There are many advocates for and against operative measures in these cases. When there is complete or partial paralysis and the extent of injury is very uncertain, I believe that operative procedures are necessary to clear up this point, also to give a chance to remedy the damage. One cannot say to what extent the cord has been injured until the dura has been opened. The external appearance of the dura frequently will lead one to believe that there has been no injury, or very slight injury to the cord itself, when on opening the dura one will find extensive injury.

Dr. Jonas has said that in most cases delayed operation holds no hope. I want to present a case here to illustrate that that is not always true.

The accident occurred in 1904 while the patient was diving in shallow water. It was followed immediately by paralysis, both motor and sensory, and semiconsciousness lasting two weeks; the consciousness then returned with partial or very slight sensation. Improvement was gradual for three months until he had very slight motion of the upper part of his arms only. Within a week this patient began to have bedsores, and in a short time his back was pretty well covered with them. After a year and a half some slight improvement began again, and for six months was rather marked. The bedsores healed up and he got more sensation and a little more motion. Paralysis of the sphincter muscles was complete, the patient having to be catheterized from the time of the accident until

after operation. The bladder and kidneys became infected, and he was refused operation a number of times, being told that it was useless.

April 15 the patient presented himself to me, and a laminectomy was done.

The bodies of the vertebræ were found to be driven together, and there was overlapping of the laminæ. The laminæ of the fifth and sixth vertebræ were removed. The dura was found to be adherent to the laminæ and also to the vertebræ in front. The adhesions were broken up and the cord lifted to one side; the sharp projections from the bodies of the vertebræ were chiseled off, the cord replaced, the dura opened and found to be adherent to the cord for about 1½ inches. These adhesions were loosened, a probe passed up and down the canal to see whether there were further adhesions, which were found to be absent and the wound was closed.

The immediate effects of the operation were excellent. The heart steadied down; catheterization was found to be unnecessary after ten days; his bedsores healed, and in three weeks he had none; he began to use the intercostal muscles for breathing, and gradually returned to the use of the muscles of the arms and hands; the sphincter control of the bowels became normal, although at the present time he must take enemas on account of severe constipation.

In two months the patient was able to be propped up, feed himself with his hands, hold a newspaper, smoke a pipe, and was comparatively comfortable. He has improved steadily until at the present time he can move his legs. [Dr. Howard exhibited the patient.]

DR. STANLEY STILLMAN, San Francisco: My results in an operative experience of sixteen cases of fracture of the spine have been absolutely *nil*. The patients all recovered from the operation, but not one of them showed the slightest sign of improvement. The deformity in many of the cases was very slight. There was every reason to believe in some of them that improvement might be hoped for. Some of them lived for three years afterward, and one is now living six years since the fracture. The others died within three to six or eight months after the accident. The hope of regeneration after resection of a portion of the cord is of course absolutely futile. I have seen Sir Victor Horsley attempt to do such resection in an old case of fracture of the spine, encouraged by the "success" of an operation done in Philadelphia some years ago, in which it was claimed that regeneration of the cord had taken place after such resection and suturing of the damaged portion of the cord. But Dr. Murphy and others have shown us plainly that the nerve fibers not vested with a neurilemma are not capable of regeneration.

So that while I am not opposed in any way to operation, but, on the contrary, always give the patients and their friends the privilege of submitting to operation as offering the only possible chance of recovery, still it is done without any heart on my part, and without offer of probable benefit to the patient. In spite of the poor prognosis I think that operation is indicated, for it is certain that there are some cases, such as you have heard of here, in which pressure from hemorrhage, blood-clot or displaced fragments may be responsible for the paralysis, and in such cases recovery is possible. In fact, I have seen one patient recover without operation. The paralysis was not complete, and I did not operate on that account, and the patient recovered.

DR. C. P. THOMAS, Los Angeles: My experience has been about the same as that of Dr. Stillman. A number of cases have come under my observation in which I have operated with identically the same results. I believe that it is a well-established fact that regeneration of a severed cord by gunshot wounds or spinal fracture when immediate total paralysis follows, is irreparable; and regardless of what treatment we give these patients we get the same result—failure.

The patients that are relieved by operative procedure are doubtless those in whom the paralysis is due to pressure from hemorrhage; who would probably recover just as well without operation. I have seen a complete recovery after operation in a case in which hemorrhage was the cause; and I have also seen the same sort of paralysis follow injury to the spine—doubtless due to the same cause—recover without operation. So while with Dr. Stillman, Dr. Jonas and others, if the patient insists on it, and the family desire it, it has been my custom to do laminectomy. I always explain to them that it is my belief that the operation will not influence the recovery.

DR. D. C. STRONG, San Bernardino, Cal.: I want to thank Dr. Jonas for the attitude he has taken. The position taken by the greatest authorities almost precludes a man daring to operate in these cases. They speak as though the final word had been said on spinal-cord surgery, and that it only makes a bad matter worse to operate on a completely severed cord. This attitude has lessened the chances of many of these patients for recovery.

One year ago at the state society's meeting I reported and exhibited a case of complete severance of the cord, and a great deal of skepticism was expressed as to whether the cord had been completely severed or not. That was one of a series of four cases with which I have had to deal. In three of the cases practically no results were obtained. However, enough results in those three cases were obtained to lead me to believe that if properly handled we might expect a great deal more. These three patients all died from septicemia, the result of ascending infection; all three of them were suffering at the time of their injury from cystitis from specific infection. This one case which I reported was in a healthy, vigorous man, who was run over by a heavily laden wagon. The lower dorsal vertebra was fractured, completely severing the cord. The operation was done five days after the injury. The lacerated ends of the cord were trimmed off squarely and the cord united. The spinal nerve roots above and below the injury were approximated and united, taking care to preserve the ganglia, on account of the fact that the nutrient centers are in the ganglia and not in the cord. I believe it is due to the uniting of the nerves and the preservation of the ganglia that a large share of the function of the cord was maintained in this case. While the recovery was not complete, the man was able to stand, walk with the aid of crutches, and has apparently lost only the functions presided over by that portion of the cord actually destroyed. At present he is earning his own living.

DR. HARVEY CUSHING, Baltimore: Needless to say, only by a thorough preliminary neurologic study of these unfortunate patients can misinterpretations of the results of surgical measures be avoided. It is well for us surgeons to remember the pitfalls of the past, such as the reports of immediate restoration of function after suture of an injured peripheral nerve, a physiologic impossibility, of course, in the higher animals at least.

One may conveniently divide these cases into three groups. In the first operation is contra-indicated as spontaneous recovery is probable. The easily recognizable cases of hematomyelia are comprised in this first group; and the spinal palsies, accompanied by an acute flexion of the neck such as follow diving accidents, are often of this type.

Surgical measures are contra-indicated in a second group of cases, owing to the futility of intervention; and the mere fact that friends and patient desire it is not a sufficient defense or excuse for operation. These are cases of immediate total transverse lesion, after which a useful, if any, restoration of function at all is inconceivable. These cases are usually recognizable, if the patients are seen immediately after the injury, by the sharply cut, upper segmental level of total anesthesia and the complete abolition of the deep reflexes.

Now the third group of cases comprises those individuals with partial lesions from wounds or fractures in which prompt intervention is unquestionably indicated.

There are two points relating to the surgical treatment of these cases to which I should like to call attention. One concerns the care of the bladder, the other the method of entering the spinal canal. An immediate suprapubic cystotomy adds immensely to the comfort of these unfortunates and renders the liability of renal infection far less. In most of these patients the lower part of the trunk is without sensation, and it requires no anesthetic to make the very small suprapubic opening through which a retaining tube is introduced into the bladder. This obviates the dribbling which

ultimately would occur and favors the production of bed sores. It obviates, too, the irregularities of catheterization which must creep in in the best conducted surroundings. Urethral drainage by no means answers the same purpose.

Now as to the laminectomy. We must not forget that unless the laminectomy is delicately carried out the performance itself may do additional damage to the cord. Rough methods of exposure are much to be decried—methods of the mallet and chisel type. Adherence to such methods is what makes operators so often speak of the "shock" of laminectomies. Shock, so-called, arises from the trauma and loss of blood incidental to rough procedures. A laminectomy should be quite a bloodless performance and unattended by jar. It, in the first place, should be a median operation, hugging the spines and laminæ, from which the periosteum should be scraped away with care.

After removal of the spines the method of entering the canal which I employ is one which I can highly recommend to others. Primary entry down to the posterior ligaments is made with a Doyen perforator through the stump of each of the individual amputated spines—five or six, as the case may be, and rarely can a proper exposure be made with less. The perforator is followed by the burr which reams away each spine in turn and much of its adjoining laminæ. The lateral bony projections which remain can then be easily nibbled off with delicate sharp-nosed rongeurs, and a broad exposure of the canal is obtained.

The yellow, elastic posterior ligament is then delicately scraped away, down to the dura, and this membrane should be opened without injuring the arachnoid. This is an important matter and one, I believe, that is rarely observed. With the dura open and the bulging arachnoid uninjured the best possible view of the cord is obtained through the thin, delicate, transparent membrane, which will often enlarge the structures as though they were seen through a magnifying glass. I am sure that the emphasis which is laid on the loss of cerebrospinal fluid as an incident to "shock" is without foundation. A patient is so apt to be upset by rough methods of entry at this stage of the operation that the upset is attributed to evacuation of fluid, rather than to the preceding rough manipulations. In all cases, needless to say, the wound should be completely closed without drainage.

DR. A. F. JONAS, Omaha: Unfortunately we are not all highly trained neurologic surgeons, as Dr. Cushing is; and usually we get very little aid from the neurologists. Most of us who do general surgery have but a limited knowledge of neurology as affecting these particular injuries.

I have formulated this plan for my own guidance: in all cases of doubt, open the spinal canal. The opening of the spinal canal itself is not difficult or dangerous, and I am sure that in none of the cases in which I have operated have I made the patients worse. The wound itself heals well, and I have never had trouble with it. It seems to me for the average surgeon doing accident work, who has not had the advantages of neurologic training, such as Dr. Cushing has had, it is best to open the spinal canal and determine the exact nature of the injury.

It is true that all patients with transverse lesions of the cord have died sooner or later; but in partial cord lesions I have had one recovery, and that is the case of the fracture of the laminæ of the fourth and fifth cervical vertebræ, in which the meninges were torn and there was a considerable accumulation of blood, and the cord lesion was evident on examination. I admit there can be no regeneration of the cord when it has been transversely destroyed. It was impossible in my cases to bring the cord ends together and suture them, because the cord was so soft and inelastic, even when there was only a limited destruction of the cord elements.

The patients who recovered were those in whom there was a blood-clot in or under the dura, and the cord was not involved. They might have recovered anyway; but I could not tell positively before operation that there was no cord injury. So I opened them and did no damage.

The patients in whom there was hemorrhage in the cord itself, died; and so far as I have been able to learn from the reported cases, all such patients sooner or later die.

THE PRESSOR ACTION OF AN AMERICAN MISTLETOE *

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A certain mystic and poetic significance is attached to the term mistletoe because of the use of a European mistletoe (*Viscum album*) in the religious ceremonies of the Druids and in those of the early Christian church.[1] Norse mythology associated it with the worship of Freya, the Norse Venus, while Ovid and Virgil attributed magical powers to it. A species of mistletoe was collected with religious ceremonies by the Persian magi.

European mistletoe (*Viscum album*) has been used in medicine from very early times, its use being referred to by Paulus Ægineta,[2] Pliny, Dioscorides, Celsus,[3] and by the Moslem physicians Avicenna[4] and Ebn Barthar, although the conditions for its use have never been accurately defined. In the Middle Ages it had a high reputation in the treatment of nervous disorders.[5] In the seventeenth century interest was aroused by Boyle's note on the cure of epilepsy by it.[6] Recently Deguy[7] claimed that *Viscum album* was very serviceable in the treatment of albuminuria, and Delassus and Gaultier[8] have used it with some success in the treatment of tuberculous hemoptysis.

The gummy material obtained from this and other related plants has been used for the catching of singing birds, and, therefore, called "birdlime." *Viscum album* has been studied chemically by Grandeau and Bouton,[9] mainly with reference to its nutritive value. It has also been examined by Reinsch,[10] who isolated a crude product called viscin and a substance, viscautschin, resembling caoutchouc. Viscin yields viscinic acid and viscin oil. It is soluble in benzin, but insoluble in water. Viscin has usually been considered the active principle of *Viscum album*, although Reinsch, who first obtained this product, made no test of its physiologic activity. More recently Pavlevsky[11] obtained from *Viscum album* a crystalline acid by treatment of the plant with nitric acid, but nothing is definitely known of it. Crude viscin has been recommended as a coating for enteric pills, as

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* From the Laboratory of Pharmacology, Leland Stanford Junior University, Cal. Much of this work was done in the United States Department of Agriculture, at Washington, D. C.

1. For symbolism concerning the mistletoe see Fraser, J. G.: Golden Bough, 2 ed., iii, 446; also a popular article on the mistletoe bough in the Eclectic Magazine, 1802, new series, iv, 116; Am. Med., 1904, viii, 1032; Hazlitt, W. C.: Faiths and Folklore, ii, 412; Knott, J.: The Mistletoe, N. Y. Med. Jour., 1908, lxxxviii, 1159. This gives a detailed historical sketch of the usage of mistletoe.

2. Paulus Ægineta: Seven Books, Transl. by F. Adams, iii, 141, 1847, New Sydenham Soc.

3. Celsus, A. C.: On Medicine, ii, 18, 19, 31, 110, 204, transl. by A. Lee, London, 1836.

4. Foy, G.: Mistletoe, Med. Press and Circular, 1887, p. 588; Am. Med., 1904, viii, 1032.

5. Mistletoe in Medicine, Bookworm, 1894, vii, 358; Howell, T. A. S.: Viscum album, Practitioner, 1882, xxviii, 22; Colbatch, J. A.: Dissertation concerning Mistletoe, n. d.

6. Boyle, R.: Usefulness of Experimental Natural Philosophy, Oxford, 1664, p. 175.

7. Deguy: Viscum album, Jour. d. Pract., 1901, xv, 393.

8. Delassus: De quelques préparations officinales du gui (Viscum album), Bull. gén. de thérap., 1907, cliv, 174. Gaultier, R.: Résultats cliniques et expér. de quelques études sur la valeur thérap. et physiol. du gui de chêne, Bull. gén. de. thérap., 1906, cli, 67, 88, 141.

9. Grandeau and Bouton: Etude chimique du gui (Viscum album Linn.), Compt. rend., Acad. d. sc., 1877, lxxxiv, 129, 500. Grandeau, H.: Recherches chim. sur le gui, Ann. de la stat. agronom. de l'Est., 1828, referred to by Giniels and Ray (original not seen by the writer).

10. Reinsch, P.: Beitr. zur chem. Kennt. d. Weissen Mistel (Viscum album L), Neues Jahrb. f. Pharm., 1860, xiv.

11. Pavlevsky: Bull. Soc. chim. de Paris, 1880, n. s., xxxiv, 348.

a substitute for caoutchouc in the preparation of plasters and as a dressing base in cutaneous diseases.[12]

Muntz[13] obtained galactose by treating the gummy material with acid, and Tanret found both inactive and racemic inosit in *Viscum album*.[14] Others, as Knop,[15] Councler,[16] and Erdmann,[17] have studied the European mistletoe (*Viscum album*) with reference to its ash content. These analyses show a greater percentage of magnesium with reference to calcium than is the rule in plants. Recently Le Prince[18] obtained from this plant a volatile base having the empirical formula $C_5H_{11}N$. This compound gave the pyrrol reaction with a pine chip. Le Prince made no tests as to the activity of this base. He also reports the presence of a glucosid and resinous body, but details concerning the two latter bodies are not yet available.

This mistletoe has been used in certain parts of France as an addition to the food of stock,[19] but its value remains to be determined. According to Heim, dogs fed with this plant show scarcely any symptoms.

The common mistletoe of the eastern part of the United States is *Phoradendron flavescens*.[20] It is at times popularly called "golden bough."[21] This plant is often confused by medical writers with *Viscum album*. Both plants are parasitic to various trees.[22] Laurent has suggested that the European species secretes a principle which is poisonous to its host.[23] In this country various species of mistletoe are causing considerable damage to trees and work is now being done to obviate this destruction.[24]

Some years ago interest was reawakened in the *Phoradendron flavescens* by the announcement that marked oxytocic powers could be attributed to it. It was claimed that it was active even when ergot failed.[25] This plant has been used to produce abortion by the negroes of the southern states, and also by the Indians of Mendocino County, California.[26] It was also once supposed to be useful as an aid to fecundity. The Kaffirs of South Africa believe their species of mistletoe to affect the secretion of the kidneys.[27] The Chimariko Indians of California are said to smoke an oak mistletoe as a substitute for tobacco,[28] while certain of the Arizona Indians use the *Phoradendron juniperinum* as a substitute for coffee.[29] Both the *Viscum album* and the *Phoradendron flavescens* are claimed to have the same medical action and have been used as substitutes for digitalis in cardiac therapy;[30] but perhaps this belief has arisen by the confusion of the two species. The Orientals, however, consider the mistletoe injurious to the heart.[31] Payne[32] studied the action of the fluid extract of *Phoradendron flavescens* on various lower animals, but failed to control these injections with a corresponding amount of alcohol, and his data were insufficient to justify any conclusions.

Both the European and American species are claimed at times to produce poisoning. The symptoms reported have been those of vomiting and purging, and collapse;[33] hallucinations and bounding pulse, stertorous respiration, rigid and dilated pupils. Certain of the Indians,[26] however, assert that it is merely mistletoes grown on certain trees which are poisonous, and Cornevin questions if the European species is really poisonous.[34]

The American plant has practically fallen into disuse as a medicine, but now considerable attention is being directed to the study of the European species. Some years ago I noted that if an aqueous or a fluid extract of American mistletoe (*Phoradendron flavescens*) was injected into the cardiac end of the saphenous vein of a narcotized dog, whose vagi nerves had been cut, there followed a temporary fall in blood-pressure, but this was succeeded by a sharp rise associated with a rapid heart-beat; this rise in the systemic blood-pressure was very persistent. If the vagi were not cut the rise was more gradual, and if atropin had been previously used, the injection of mistletoe caused no initial fall in such animals. But while the rise in blood-pressure resembled qualitatively that produced by epinephrin, extracts of mistletoe when applied to the conjunctiva failed to produce local vasoconstriction. Accompanying this rise of blood-pressure was an immediate increase of urinary secretion. This increase in urinary secretion could be determined by counting the drops as they fell from ureteral cannulæ. A short notice of this find appeared,[35] but this investigation has been sidetracked by other work.

Of the plants known as mistletoe in our western states, three were examined: *Razoumofskya americana*, *Phoradendron juniperinum*, and *Phoradendron villosum*.[36] Of these *Phoradendron juniperinum* alone

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15. Knop, W.: Ueber d. unorgan. Bestandtheile d. Vegetabilien, Jour. f. prakt. Chem., 1846, xxxviii, 30.

16. Councler, C.: Aschenanalysen verschiedener Pflanzen und Pflanzentheile, Bot. Centralbl., 1889, xl, 129. Tubeuf, V.: Ueber Aschenanalysen von Viscum album, Bot. Centralbl., 1890, xli, 43, 80, 135.

17. Erdmann, C.: Ueber d. unorgan. Bestandtheile von Viscum album, Ann. d. Chem. u. Pharm., 1855, xciv, 254.

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29. Hough, W.: Environmental Interrelations in Arizona, Am. Anthropol., 1898, ii, 142.

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31. Ranking, G.: Mistletoe, Lancet, London, 1904, i, 756. Murrell, W., Payne and others: The Physiological Action and Therapeutic Uses of the Common Mistletoe, London Med. Rec., 1881, ix, 266.

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36. For notes concerning various mistletoes, see v. Tubeuf, C.: Ueber die Beziehungen zwischen unseren Mistein u. d. Thierwelt, Naturw. Ztschr. f. Forst- u. Landw., 1908, vi, 47: Ueber die Bedeutung v. Beerenfarbe u. Beerenschleim bei d. Mistel, Naturw. Ztschr. f. Forst- u. Landw., 1908, vi, 141. Vrolik, G.: Over eenige physiol. Eigenschappen von Viscum album, Verschlagen en Mededeel. d. koningkl. Akad. v. Wetenschappen, 1857, v, 263. Hough: Am. Anthropol., 1898, ii, 142. Barrows, D. H.: Ethnol. Botany of the Coahuilla Indians of Southern California, 1900, p. 80.

seemed to give the characteristic rise in blood-pressure.

In the case of the European species of mistletoe, *Viscum album*, Gaultier[37] found that the injection of extracts of this plant into the cardiac end of the vein of a dog, whose vagi were intact, was followed by acceleration of the heart-beat with a lowering of blood-pressure. Chevalier[38] traced this hypotensor action of mistletoe to saponin-like glucosids, but he did not isolate these bodies. Gaultier apparently makes no mention of any rise in blood-pressure, but he noted an increase in the urinary secretion. Doyon and Gaultier[39] have recently claimed that this extract interferes temporarily with the coagulability of the blood.

CHEMICAL EXPERIMENTS

The leaves and twigs of the *Phoradendron flavescens* were first used, but later it was found more convenient to start with the fluidextract of mistletoe such as is found on the market. All fresh fluid or aqueous extracts of the fresh *Phoradendron flavescens*, which were examined, produced this action, but some old ones were almost inactive. The fluid extract of mistletoe was bought from two of the large drug manufacturing firms of the country, in both of which botanical identifications are made. By starting with the fluidextract, the method of isolation of the active principle could thus be shortened.

At first lead acetate was used to precipitate various inert bodies. It was noted that, in removing the lead from the filtrate by hydrogen sulphid, the solutions lost their activity if this gas was passed into aqueous extracts of the plant, but not in the case of strong alcoholic solutions. As the use of lead did not simplify the problem, it was soon given up.

One hundred c.c. of the fluidextract of mistletoe were evaporated *in vacuo* to free from alcohol and the residue was then taken up in a little water. This solution (about 20 c.c.) was poured into a bottle of about 2 liters capacity and a quantity of ether poured on the fluid, and calcined magnesium oxid was gradually added in sufficient quantity to take up the water and free any base present. The bottle was shaken, preferably in a shaker, for about one hour, and filtered after five or six hours standing. Three such shakings extract practically all the ether-soluble pressor compounds. There was, however, some reason to believe that perhaps the mother fluid still contained a pressor body not shaken out by the ether. The ether, which had an amin odor, was filtered into a pear-shaped separatory funnel and a drop of concentrated hydrochloric acid added with a stirring rod. If there was merely a trace of water in the ether, clumps of beautiful crystalline needles would separate on the walls of the vessel. These crystals produced the intense and persistent rise in blood-pressure characteristic of the original extract. The amount of crystals obtained by means of hydrochloric acid was small and the yield was very uncertain, perhaps owing to the hygroscopic character of the hydrochlorid. The salt melted at about 250 C.

It was found that if, in place of hydrochloric acid, an ethereal solution of oxalic acid was used, a crystalline compound could be more easily obtained. On reprecipitation, these crystalline needles were usually perfectly white, although at times a third precipitation was necessary to remove all color.[40] If ordinary U. S. P. ether was used, these crystals gave an ash residue, but if the ether used for the extraction was first shaken with water to remove alcohol, and then distilled over calcium chlorid and sodium, the crystals obtained by this second shaking were practically ash-free and melted between 187-190 C. The oxalate was optically inactive. Some of the compound was apt to be lost in the second shaking with magnesium oxid and ether, so to avoid this only a minimum amount of water was used for solution and at first only small quantities of magnesium oxid were added, then the ether shaken vigorously and more magnesium oxid added, so as to take up all the water. Some experience is required to obtain a satisfactory yield.

Again, in isolating the base from the first oxalate, it was found necessary to use the purified ether, as the ordinary U. S. P. ether "shaking" yielded only a few crystals. The ethereal solution of the free base gave no precipitate with an ethereal solution of iodin, or of picric acid, or with carbonic acid, and the oxalate gave no precipitate with platinum chlorid. However, a platinum compound was obtained from the hydrochlorid.

On evaporating the ethereal solution of the base, freed from the colorless oxalate, a colored gummy material was left and this gave a colored solution with water, suggesting that the free base readily underwent oxydation.

Before analysis, the oxalate was shaken vigorously three times with anhydrous ether, so as to remove any attached oxalic acid and then the crystals were dried *in vacuo* over sulphuric acid. Of one sample of the second oxalate 0.1612 gm. were mixed with copper oxid and burnt. This amount yielded 0.3194 gm. CO_2 and 0.0858 gm. of H_2O, or C—54 per cent., H=5.95 per cent.

Of one lot made by precipitating three times with oxalic acid 0.0951 gm. gave 0.1889 gm. of CO_2 and 0.0549 gm. of H_2O, or C=54.1 per cent., H=6.4 per cent.

By the Dumas method and mixed with cuprous chlorid, 0.1504 gm. of one sample of the second oxalate gave 9.3 c.c. N at 21.8 C. and under 765.8 mm. barometric pressure, so that N=7.03 per cent., while .155 gm. of the second lot gave 9.75 c.c. N at 22 C. and under 763 mm. barometric pressure, therefore, N=7.15 per cent.

This would correspond to C 54 per cent., H 6.2, and N 7.09 per cent. The simplest percentage formula which would answer this requirement is $C_9H_{13}NO_4$. This would correspond to 4 oxygen atoms, so that only one oxalic acid group can be present. If we subtract the oxalic acid group, it would leave us $C_7H_{11}N$ as the probable formula. Hass[41] has shown that certain carbon compounds, when burnt by the copper-oxid method, do not yield the theoretical amount of CO_2, as some of the carbon passes off unabsorbed as methane. Under these circumstances the formula $C_7H_{11}N$ must be considered merely as provisional, at least until an analysis of the platinum-double salt can be made.

37. Gaultier, R.: Résultats cliniques et expér. de quelques études sur la valeur thérapeutique et physiologique du gui de chêne, Bull. gén. de thérap., 1906, cli, 67, 88; De l'hypertension passagère comme cong. tuberc., vol. i, pt. 2, sect. ii, p. 821. Minola, G.: Sull' azione dell' estratto acquoso di Viscum album, Corriere Sanitario, 1908, xix, 66.

38. Chevalier, J.: Recherches pharmacologiques sur le gui, Bull. gén. de thérap., 1909, clv, 459.

39. Doyon and Gaultier, C.: Action de l'extrait de gui sur la coagulation du sang, Compt. rend. Soc. de biol., 1909, lxvii, 547, 719; Propriétés anticoagulantes du sang à la suite de l'injection intraveineuse d'extrait de gui, Compt. rend. hebd. Soc. de biol., 1909, lxvii, 567.

40. A control solution of ammonium chlorid was similarly shaken with MgO and ether. The white crystalline body which was precipitated from the ether by an ethereal solution of oxalic acid showed no change when heated to 205 C.

41. Hass, P.: Occurrence of Methane Among the Decomposition Products of Certain Nitrogenous Substances, Tr. Chem. Soc., London, 1906, xxxix, 570.

Barger and Dale[42] have recently shown that most of the activity of ergot is due to various amin bodies, primarily p-hydroxy-phenylethylamin, and Barger and Walpole have found that phenylethylamin is present in ergot in small quantities. This has been shown by Dale[43] to cause an epinephrin-like rise in blood-pressure. This rise resembles that obtained from the mistletoe base. Phenylethylamin has a percentage formula $C_8H_{11}N$.

As the mistletoe base gives the isonitrile reaction with caustic potash and chloroform a primary amin was indicated. These facts would suggest that perhaps the active principle might in reality be phenylethylamin, and that the carbon determinations were a trifle low, but phenylethylamin (Kahlbaum), when dissolved in ether and precipitated with oxalic acid, gave a body with C 64.6 per cent., H 7.3 per cent., and melted at 218 C. This would correspond to phenylethylamin monoxalate $[(C_8H_{11}N)_2C_2H_2O_4]$, and not to the dioxalate ($C_8H_{11}N.C_2H_2O_4$). The monoxalate demands 65 per cent. C and 7.5 per cent. H. Benzylamin was first suspected to be the pressor principle, but its oxalate ($C_7H_9N\ C_2H_2O_4$) melts at 175 C., that is, over 12° C. lower than the mistletoe oxalate. The fact that my analysis of the monoxalate of phenylethylamin by the copper oxid method gave a slightly lower percentage than the theoretical amount of carbon, would suggest that, perhaps, my carbon determinations are a trifle low and that the real percentage formula may prove to have the percentage composition $C_8H_{11}N$. So that at present, the data at hand is not sufficient to identify the active pressor principles of our southern mistletoes. Further chemical work will be done on this subject and the therapeutic possibilities discussed. The question whether this compound retains its activity when given by mouth with be investigated.

ABSTRACT OF DISCUSSION

DR. REID HUNT, Washington, D. C.: Do you consider the diuresis to be due to a direct effect on the kidney, or to result from the change in blood-pressure?

DR. A. C. CRAWFORD, Stanford University, Cal.: I have gone carefully over the early literature on ergot and have never seen any statement that there was a diuretic action associated with its use. I have not as yet analyzed physiologically the action of the mistletoe, but suspect that its diuretic action is secondary to that on the circulation; but cannot prove this at present.

HISTOLOGIC EXAMINATION OF THE FAUCIAL TONSILS WITH REFERENCE TO TUBERCULOSIS *

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The question of the relationship between the tonsils and tuberculosis is one that has been agitating the minds of pathologists and clinicians since Trautman in 1886 called attention to the possible connection.

It was not till 1895 that laboratory methods were brought to bear by Dieulafoy, who performed inoculation experiments on guinea-pigs and made the startling announcement that out of ninety-six pigs inoculated with bits of tonsil, fifteen showed tuberculosis. Later research has shown that these figures are not reliable.

The work has developed by rapid stages. Goodale in 1896 proved that minute particles of carmin could be absorbed quickly by the tonsil. Although bacteria are not so easily absorbed we have abundant proof that such absorption does take place. Dmochowitz and Wood have reported seeing the bacteria in the act of penetrating the tonsil.

The frequency of the presence of tubercle bacilli in the mouth varies enormously. In individuals in the later stages of tuberculosis of the lungs it has been shown that myriads of tubercle bacilli pass the tonsil in the sputum. Also the respired air carries tubercle germs in proportion to their presence in the atmosphere. Oral respiration favors infection from inspired air. It has been shown that air that has passed through the nasal cavities is remarkably free from bacteria. The next point that was conclusively shown is epoch-making in importance; it is that tubercle bacilli can be absorbed into the tonsils. All that is necessary is an ample dosage of sufficient virulence, without an injury to the tonsillar mucous membrane being necessary. Wood, in 1905, by experiments on hogs, which have considerable tonsillar tissue, was able to infect the tonsils and cause the formation in them of tubercles by simply swabbing on their surface virulent cultures of tubercle bacilli.

In this connection, the percentage of tonsils showing tubercles in patients suffering from tuberculosis is most interesting because we have in them the same conditions as in Dr. Wood's experiments. The percentage of such tonsils showing tubercles is so high that some men have even gone so far as to say that in all cases of tuberculosis of the lungs coming to autopsy the tonsils show tubercles.

It has thus been established fairly conclusively, by experimentation and actual pathologic observation, that the tonsils become infected with tubercle bacilli and that typical tubercles form within them. The infecting germs may be coming from within the body, in which case we have secondary tuberculosis of the tonsil, or they may enter the mouth with food or otherwise and find primary lodgment in the tonsil.

While it is conceded that tuberculosis of the tonsils is, as a rule, secondary to tuberculosis of the lung, and that primary infection of the tonsil is comparatively rare, a great deal of material has been collected in which diagnosis of primary tuberculosis of the tonsil has been made. The number of cases runs between 1,600 and 2,000 and the abundant material in the hands of different observers gives a percentage a little over 5. These figures are fairly well agreed on. The diagnosis in these cases has rested on inoculation experiments and histologic findings.

The next question is, What are the clinical earmarks by which we can look into the mouth and diagnose such an infected tonsil? Speaking as I am in this paper altogether of non-ulcerative processes, I might say that there are no signs by which the condition can be recognized. Some men have described particular features, but the majority of observers agree that there are no distinguishing signs. Danziger, for one, reports the careful examination of 100 tuberculous patients. A certain large percentage of such patients are said to have tuberculous tonsils. Danziger could recognize no points on which to make a diagnosis. When the course

42. Barger, G. and Walpole, G. S.: Isolation of the Pressor Principles of Putrid Meat, Jour. Physiol, 1909, xxxviii, 343. Dale, H. H., and Dixon, W. E.: Action of Pressor Amins Produced by Putrefaction, Jour. Physiol., 1909, xxxix, 25.

43. Barger, G., and Dale, H. H.: Chemical Structure and Sympathomimetic Action of Amins, Jour. Physiol., 1910, xli, 19.

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of infection is once followed into the tonsil, how much farther is it possible for the tuberculous progress to be traced?

It has been proved that the lymph from the tonsil drains first into the superficial glands of the neck, and then into deep glands. The first gland of the chain, Wood has called the tonsillar gland; it is situated near the angle of the jaw. It is usually the first to enlarge in tonsillar trouble and when pushed outward by underlying, swollen glands, may be mistaken for the submaxillary salivary gland. The passage of the tubercle bacilli from the tonsil to these glands has been shown experimentally by Wood. Not only were tubercles found in the tonsil after the swabbing of the hogs' throats with virulent tuberculous culture, but within a comparatively short time the corresponding cervical glands were involved. Not only was he able to show that the glands were involved simultaneously with the tonsils, but also that the glands could be involved and show tubercles without the tonsil, which had been swabbed, becoming involved. In other words, the bacilli passed through the tonsil without leaving any trace. Others have shown that the passage of tubercle bacilli and other germs through the intact mucous membrane of the intestine is quickly accomplished. Tuberculosis thus enters the system in doubtless many cases. Bacteria can also be made to pass through the intact mucous membrane of the mouth, but with difficulty.

The absorption is much slower than that from the tonsil, as shown by the infrequency of the cervical gland enlargement in inoculated guinea-pigs, which have little or no tonsillar tissue.

From the above citations the infection of tonsils and lymph-glands of the neck has been clearly established. The cause of cervical tuberculous adenitis in the great majority of cases is clear. What is the danger of general or pulmonary tuberculosis from tubercle bacilli entering by this path?

Grober has done some painstaking work and, as a result, contends that there is direct connection through the subclavian glands and by contiguity, with the pleura and apices of the lungs. In 1900 he believed he could trace particles of India ink from the tonsils to the apices.

Beitzke has criticized Grober's conclusions and summarized his own results thus: 1. There exist no lymph-vessels leading from the chain of cervical lymphatic glands to the bronchial glands. 2. Infection of the lung could take place only through the lymphatic trunk and veins. 3. This path is not of importance in children. The infection of the lungs and hence the bronchial glands as a rule takes place through aspiration.

Wood says the danger of systemic pulmonic infection resulting from a tuberculous lesion of the tonsillar tissue is about equal to that from tuberculosis of the cervical lymphatics. The lesion to be expected from the broken down glands of the neck is a miliary tuberculosis of the lungs. Further than this possibility, tuberculosis of the lymph-glands of the neck is no more dangerous than localized tuberculous lesion in any other portion of the body. It must be borne in mind, however, that the cervical glands are those most frequently involved, being affected in about 90 per cent. of the cases of lymph-node enlargement. The frequency of enlargement of these particular glands is noteworthy in the light of the experimental findings cited.

It would appear from the foregoing paragraphs that the etiology of tuberculous glands of the neck had been fairly established, but as many of our texts and best reference works govern medical opinion and action, a few quotations from them will show that there is need of all additional statistics possible on this subject. It was with the object of adding a little to these statistics that the work was undertaken at Cooper Medical College and this paper is presented.

Osler in his "System of the Practice of Medicine" says: "Much has been written of late on the relation of the tonsil to tuberculosis, especially with regard to the importance as a portal of entry; but even now, after the study of hundreds of cases, there is no great unanimity of opinion."

Keene's "System of Surgery," speaking of operative treatment of tuberculous glands, says: "Some patients are relieved of all symptoms of tuberculosis and gain rapidly in health. A considerable number fail to obtain a complete cure and succumb ultimately to pulmonary or to another form of tuberculosis.

Demmé found in a report of the Berne Hospital that in 29 per cent. of 692 cases of cervical tuberculous adenitis observed, the patient died of tuberculosis. This book does not mention the removal of the tonsils, which were the probable cause of the glandular condition. Is there any wonder that the glands go on enlarging and becoming tuberculous as long as one remains to *protect* the individual?

It is a fact that many of our general surgeons remove what glands they can in tuberculous cervical adenitis and will reoperate one or more times without removing the tonsil in its entirety.

Since 1907, 1,088 pairs of tonsils have been enucleated in our private practice or in the ear, nose and throat clinic at Cooper Medical College. Of these, 772 pairs have been examined in the pathologic laboratory of the institution by Professor Ophüls and Assistant Professors Dickson and Oliver. This represents the sectioning of 1,544 individual tonsils and this material is equal numerically to about half of all the cases that have heretofore been gathered from the literature.

The method of examination has been to harden the tonsils for twelve hours in Orth's fluid and then make a few frozen sections from the middle of the tonsil. Where it seems advisable from the general appearance of the tissues, these are followed up in some cases by a few more sections. These additional sections are made in different axes. The tuberculous condition, when present, is quickly recognized and typical tubercles, as described in the original communication of Koch, are made the basis of the diagnosis. Most of the articles that have been published have gone into detail as to the great sources of error in the diagnosis of tonsillar tuberculosis until one is driven to the conclusion that absolute diagnosis is impossible. At the same time Wood, for example, and in fact all others, have accepted in their statistics cases where the diagnosis has rested on the histologic findings.

It is said that to establish a diagnosis of tuberculosis of the tonsil it is necessary (1) to demonstrate the tubercle histologically, (2) to find in it the tubercle bacilli and (3) to prove that they are tubercle bacilli, and not some acid-fast impostor, by inoculation of animals which shall show at death tuberculosis. True, these are the laws laid down for the recognition of tuberculous lesion, but do we apply them in this hard and fast manner in diagnosing, histologically, tuberculosis of kidney, liver, lung or other organ?

Such evidence is certainly not required to establish the diagnosis of tuberculosis in other parts. The

tubercles are identical whether they occur in kidney, spleen, liver, or tonsil, and inoculation of animals is required only when the typical tubercle cannot be found. The bacilli are not found in a very large percentage of cases where absolute and unquestioned diagnosis is made. Why, then, has there been so much question about the diagnosis of the tuberculous lesion in the tonsil? A tubercle in the tonsil must be differentiated from the round, light germinal area, but to the experienced eye there is no difficulty in so doing; there is no caseation in such an area.

The next point that investigators insist on is the presence of giant cells in the tubercle to establish its tuberculous character. Giant cells are fused epithelioid cells and are often found in the tonsil in tuberculosis, but it is certainly possible to make a diagnosis of tuberculosis from the tubercle without demonstrating their presence. Then it is said, even when we do find giant cells, that they may be caused by foreign substances. True, such giant cells may occur, but even then the picture to the experienced pathologist is not tuberculous.

I wish to add also that in the 1,544 tonsils examined not one such "foreign body giant cell" was found, and if it had been found, in all probability the foreign body would have been demonstrable.

In regard to the greater value of inoculation experiments, I should say that where performed on the tonsil they have not the same value as when performed on other tissues, because we cannot possibly free the tonsil, by washing or other means, from all tubercle bacilli that may be lurking in the crypts or elsewhere, and the use of the center of it might miss the tuberculous portion.

The quasi-inert character of the tubercles, and the difficulty in finding tubercle bacilli in them, would suggest that the resistance of the guinea-pig might be sufficient to withstand the few bacteria evidently present.

The presence, as we have seen, in tonsils of cavities containing from a few to 15 or 20 minims of creamy pus, adds to the difficulty of this method of diagnosis, for this pus would surely lead to acute peritonitis, if injected into the peritoneal cavity of a guinea-pig.

The finding of the bacilli, practically impossible with the means and time at hand, is open to the objection that acid-fast bacteria, though extremely rare in such a connection, may creep into our calculations.

It seems to me then that the histologic examination of the entire tonsil, the sections numerous enough to include every tubercle, is the only diagnostic method not open to criticism.

The work of the laboratory of Cooper Medical College has been histologic, but it has been subject to error due to the few sections made. Tuberculosis has been reported in thirty cases out of the 772.

A very thorough piece of work has been done by Dr. Downing, assistant in the clinic, in an endeavor to check up the laboratory findings and determine the percentage of error.

Dr. Downing examined a series of twenty pairs of tonsils which had been previously passed upon by the laboratory as free from tuberculosis. They were blocked in paraffin and sections stained about every 0.1 mm. throughout the entire tonsil. "This was considered amply sufficient to gain a section of any microscopic tubercle that might exist. Dr. Walsh of Baltimore, in studying the frequency of tuberculosis of the kidney, considered it sufficient to make only from three to 120 sections from the two entire kidneys."

Downing stained the sections in hematoxylin and eosin. The twenty pairs of tonsils examined gave from 100 to 216 sections to the pair. The average number was about 100, making a series of over 2,000 sections. In this series, Dr. Downing found one tuberculous tonsil that was overlooked by the pathologic laboratory routine. In this case 100 sections were made. Twelve of these showed definite tubercles with giant cells of the Langhans type. Dr. Boardman, working along similar lines, examined twenty-three tonsils already examined by the laboratory and found no tubercles present.

To sum up the work, there have been 772 pairs of tonsils examined by the pathologic laboratory routine under Professor Ophüls and Professors Dickson and Oliver. Thirty-eight of these sections, representing thirty pairs of tonsils, were pronounced tuberculous. That gives a percentage of tuberculous tonsils of 3.9.

The work of Drs. Downing and Boardman in examining a control of forty-three pairs with *one* tuberculous adds about 2.3 per cent. to the findings, making the percentage of tuberculosis in the tonsils 6.2.

The next question is, What has a study of the material afforded as to the influence of the infected tonsils on the cervical glands? We received communications from, or saw personally, 160 patients who had been operated on during the five years. Sixty-eight of these patients had enlarged glands, varying from slight enlargement, of probably benign character, to extreme tuberculous condition with softening, fistulas, etc. Of these sixty-eight cases, the glands subsided in fifty-seven cases and have not enlarged again.

In three of these fifty-seven cases the glands and tonsils were both tuberculous; the first was diagnosed by an examination of the tonsil and some of the glands which were removed prior to the tonsillectomy; the second was diagnosed from the presence of a cold abscess, opened at the operation on the tonsils, the third from the character of the very considerable swelling which subsided immediately on the removal of the tuberculous tonsil.

This leaves eleven of the sixty-eight cases with enlarged glands to be considered.

1. In six cases, glands, enlarged before the operation, went down, but subsequently enlarged. Have a complete record of only four of these six cases. In the first case the tonsils were not tuberculous. The patient was operated on later in the surgical clinic; the glands were quiet for one year and then enlarged again.

In the second case the tonsils were tuberculous and fluctuating glands were opened at the time of tonsillectomy. They have since enlarged frequently.

In the third case the tonsils were not tuberculous; the glands were undoubtedly tuberculous. They went down slowly after the operation till six months later; then they swelled and a painless abscess formed that was opened. This healed, and the patient's health at present is good.

In the fourth case the tonsils were tuberculous; the glands were enlarged before operation, but went down slightly some months later. Suppuration occurred; they were removed and showed histologically tubercles. The present condition is good.

2. In two cases the glands were enlarged before and did not go down at operation.

In the first of these cases the tonsils were not tuberculous; the glands remained swollen after operating; have never broken down.

In the second case the tonsils were tuberculous. Tonsillectomy had no effect on the swelling of the glands. The glands were removed in a surgical clinic six weeks later. At present the cervical glands are still enlarged.

3. Three cases, in which there was slight enlargement before, present the same picture. The tonsils in these cases were not tuberculous.

To summarize 160 cases:

Ninety-two had no enlarged glands.

Sixty-eight had more or less enlarged glands.

Fifty-seven of these went down permanently.

Six went down and enlargement recurred.

Two which were enlarged before operation did not subside.

Three were slightly enlarged and are now.

1. It will be seen from the above records that quite a large percentage of the children had enlarged glands, but many of these were only slightly swollen.

2. Practically all of the glands giving trouble have been associated with tuberculous tonsils, or were tuberculous at the time of the removal of the tonsils.

3. That the removal of the tonsils worked in a beneficent manner is shown by the fact that often the swollen tuberculous glands subsided, though not always permanently.

4. That certain tuberculous glands are not associated with tuberculous tonsils is of especial interest. We believe that tubercle bacilli can travel to the glands without damage to the tonsil, and this accounts for the following facts (also for the higher percentage of tuberculous glands):

5. Glands once tuberculous, associated with tuberculous tonsils or not, may enlarge even after the tonsils have been removed.

6. We find tuberculous glands more often than we find tuberculous tonsils.

7. Even when there is a reappearance of the swelling, the glands show more of a tendency to heal and the individual to enjoy health after the tonsils have been removed.

In closing, I wish to call attention to a most noteworthy group of cases occurring in one family. They were referred to me by Professor Oliver, who made the pathologic examination of the tonsils and glands.

In the first case a girl aged 4 had much enlarged tonsils. There was no glandular enlargement of importance. The tonsils were removed and found to be tuberculous. The patient has been well since, with no enlargement of the glands. She has had diphtheria since. Her present condition is good.

In the second case a girl aged six had considerably enlarged glands. The tonsils were removed and showed definite tuberculosis; the glands later suppurated and were removed; they showed definite tubercles. The patient has had diphtheria since. Her present condition is good.

In the third case a baby aged 6 months had enlarged tonsils, but no glandular enlargement. The tonsils were removed and showed definite tubercles. The child had diphtheria one year later and following this succumbed to pneumonia. A grandmother living in the house had tuberculous laryngitis and the mother has fistula in ano.

The tonsils in these cases were quite large. A number of observers have said that tuberculosis is found more often in the small tonsil. We have found that to be the case in the majority of instances, but certainly not in all. One patient, for instance, had one large and one small tonsil. The larger was the tuberculous tonsil corresponding to the much-enlarged glands; the other was free from tuberculosis.

Perhaps the most significant point brought out by this paper is the fact that out of the 160 cases reported, though there were sixty-eight cases with enlarged glands, fifty-seven of which went down, there was not a single case in which there was enlargement of the cervical glands subsequent to the removal of the tonsils, except in those few (eleven) cases in which the glands were already enlarged at the time of the tonsillectomy.

135 Stockton Street.

ABSTRACT OF DISCUSSION

DR. F. P. EMERSON, Boston: In an adenitis which is far advanced it would seem that the primary source of the trouble was in the tonsil and that the tonsil should be removed radically. Sometimes the glands are enlarged by toxemia and will go down if the primary focus is removed. If the tonsil is tuberculous there may be a subsequent enlargement of the gland that will require its removal later. But we should go on record as being opposed to the indiscriminate removal of the tonsil. In the East the reaction has not taken place and we are radically removing all of these tonsils. If they are tuberculous there is no question about their removal. If they contain a focus of infection we should remove them. But we should encourage the profession to require a reason for removal of the tonsil. The general practitioner is assuming to dictate to the specialist what to do. He will direct the patient to go to Dr. So-and-So, who will remove the tonsil by the new method, which is with the capsule intact. But I think in every case the question whether the tonsil should be removed should be kept in our hands and we should have the courage of our convictions and say, if the tonsil is enlarged only through hyperemia, that it need not come out necessarily, especially in a child, say, under 7 years of age.

REPORT OF PRIMARY INFECTION OF BULB SINUS AND JUGULAR IN A WOMAN OF FIFTY-SIX*

SHERMAN VOORHEES, M.D.
ELMIRA, N. Y.

History.—April 10, 1909, Mrs. H., a woman aged 56, was admitted to the surgical ward of the Arnot-Ogden Hospital. The patient said she had been in poor health for two months past but had kept to her work, which was that of a forewoman in a knitting mill. Two weeks prior to her admission to the hospital, I was asked by her physician to see her in consultation at her home, as she had been ill of influenza for about a week and was having severe pain in the right ear. On examining the ear I found a small perforation in the lower posterior quadrant through which some pus was flowing. The upper part of the drum was highly inflamed and bulging. Under local anesthesia I incised this freely and left the after-care of the patient to her physician. I did not see her again until she was sent in on my service at the hospital.

Examination.—On examining the ear I found a very free discharge and a good opening in the membrana tympani, which seemed adequate for the escape of pus. The patient told me that she had constant pain and the discharge had been very profuse. She complained that the pain was deep in the ear, and pressure over the tragus caused acute suffering. There was no tenderness over the mastoid or sagging of the wall of the canal, and no enlargement of lymphatics about the neck, although she complained that the pain sometimes radiated down to the clavicle. Her temperature on admission was 102.2 F. at 11 a. m., pulse 100, respiration 24. At 6 p. m., same day, the temperature reached 104.2 F., pulse 104 and respiration 28. Under sponging and free catharsis it dropped

* Read in the Section on Laryngology, Otology and Rhinology of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

to 99.4 F. A culture showed streptococci in the discharge and a leukocyte count of 9,200, with 85 per cent. polynuclear.

Treatment and Course of Disease.—The ear was irrigated with mercuric chlorid solution at three-hour intervals, and as the patient complained of aching, I prescribed for her sodium salicylate. She seemed very septic; the tongue was heavily coated, with sordes on the teeth, the breath foul. She kept complaining of the severe pain deep in the ear. Her temperature was taken at two-hour intervals for the next three days and ran between 99 and 103 F. There was but little tenderness down the neck, although she complained of pain at this spot at times. The leukocyte count showed 11,000, with about the same polynuclear percentage. She had a chill, and at 9 p. m. on the fifth day her temperature reached 105, and the pain in the ear and down the neck was intensified. I decided then to operate, as I felt sure we had a primary involvement of the sinus and perhaps of the jugular also.

Operation.—I opened the mastoid, which contained no pus, but all the cells seemed greatly congested and bled freely as they were broken down. On reaching the bone overlying the lateral sinus, this was found perfectly healthy and gave no evidence of disease underneath. This was chiseled away rapidly and the sinus was found to be very dark and pulsated and seemed soggy to the touch. I uncovered this vessel well toward the torcula and nearly to the bulb, and had on completion of the dissection a large vessel bulging into the bony wound. I made a long incision into the sinus, but except for some oozing from around the clot there was no hemorrhage. On removing the thrombus from above, hemorrhage was quickly established, but removing the plug from below and using the curette gently, did not establish hemorrhage from that source. I then prepared the neck and opening it along the anterior sternocleidomastoid border and opening the carotid sheath found the thrombus extending well down the vein. I ligated the vein close to the clavicle and high up in the neck. All its branches were thrombosed and these were carefully dissected out, together with the vein. Hemorrhage was established from above on removal of the ligature, probably from the inferior petrosal. The wound was cleansed and a cigarette drain inserted, and the patient sent to the ward.

Postoperative History and Treatment.—The morning following, the temperature was 97.8 F., and the pulse 94; the temperature remained normal until the end of the second day when it rose to 101.4 F. and kept gradually rising until it reached 103.2. The wound was dressed and seemed to be doing finely. The thrombus having shown streptococci, I gave the patient antistreptococcic serum. In a few hours the temperature dropped to 99.4 F., but by the end of the following day had reached 103.2 F. in the axilla, pulse 120. when I again gave another injection of the serum. At this time the patient became very restless and was delirious, the breath foul, sordes on the teeth and a badly furred tongue and the lips were cracked and sore. The urine up to this time had shown no evidence of kidney or bladder disease, but blood was noticed in the urine voided. The patient, when conscious, complained of pain in the right hip and radiating down the thigh and leg. On examination a large indurated area was found over the right hip which was very tender to touch but there were no points of softening. This thrombic area grew much more extensive and more hemorrhage occurred. Pus was present also in the urine and showed large numbers of streptococci. The patient was profoundly septic and only conscious part of the time. Control of bladder and bowels was soon lost and diarrhea supervened. The temperature ran between 102.4 and 104 F. and pulse 90 to 130, together with all symptoms of sepsis, and death took place on the nineteenth day after operation.

I do not believe that had I tied off the vein prior to opening the sinus it would have made any difference in the outcome, but think the woman had thrombus on admission and should have had early operation with tying off the vein first. The case is of interest on account of her age as it is rare to find primary thrombus at this time of life, and unusual also to have metastatic thrombus into the bladder.

408 North Main Street.

ABSTRACT OF DISCUSSION

DR. J. F. BARNHILL, Indianapolis: When a patient is violently taken, as was this one of Dr. Voorhees, with the discharge of a large amount of pus, it is certain that the pus is not coming solely from the middle ear, but from all the cavities leading into the ear. When we see such large quantities of pus or of serum, it almost certainly means an extension to the middle ear and its associated cavities. Dr. Voorhees was wise in sending the patient to the hospital, for it is difficult to make the diagnosis of intracranial complications in the home, unless one makes a hospital of the home. The diagnosis often escapes us because we are unable to get all the facts in the case, and unless a competent nurse is constantly present to observe and record them. Dr. Voorhees does not mention any chill or vomiting. Undoubtedly he would not have operated so early if he had not obtained so much help in the diagnosis. The affection of the bladder is a unique feature of the case. I have frequently seen affection of the limbs with abscesses. I have within a year had a case of sinus thrombosis complicated by a large abscess of the knee, in which the patient recovered. But the early diagnosis is very important in these cases.

DR. W. E. SAUER, St. Louis, Mo.: Some of the members will remember the patient I presented before the Section at St. Louis last year. He had never had a discharge from the ear at any time. The case was referred to me by a neurologist, who had been called in by the general practitioner. The patient had had no chill up to that time. The only thing which led us to suspect a phlebitis was the pain on pressure along the jugular. The patient was perfectly rational and gave no history of ear trouble. I did a paracentesis but nothing was found. An oculist was called in and some congestion of the disk was found. The next day he had a chill with a temperature of 103 F.; we operated and found the sinus filled with pus. There was an ultimate recovery.

DR. P. SCHOONMAKER, New York: A case came under my care at the New York Post-Graduate Hospital on Dec. 30, 1910, which this report brings to my mind. A German, aged 22, with a history of otitis media purulenta chronica since childhood; left ear healed when 10 years old; right ear continued to discharge until the time he presented himself at the hospital with a history of chills, fever, headache, pain and tenderness over the mastoid for three or four days. He presented a septic appearance, demanding immediate operation. This was done at once. Mastoid large, and external table sclerotic; cavity large; pneumatic cells necrotic and filled with foul-smelling pus and formative growth. The middle ear was in the same condition. I removed this and all necrotic bone, uncovering the dura and sinus over a large area. The sinus was thrombosed, necrotic and collapsed on cross-section, discharging pus. I was unable to remove the clot from the sinus and secure free bleeding. The patient was in a collapsed condition. Saline transfusion and stimulation were employed. The operation was stopped, the wound cleansed and dressed and the patient put to bed. There was a severe chill six hours later. Dec. 31, 1910, the pulse was 100, temperature 97 F., blood examination showed 30,400 white cells with 90 per cent. polynuclear cells. Patient was very septic; body edematous; wound cleaned and dressed. Jan. 1, 1911, a second chill followed by high temperatures; jugular vein resected; sinus cleaned, obtaining free bleeding from torcular end; sinus packed; pus seen coming from dura behind sinus; opening enlarged and about 2 ounces of pus evacuated from a brain abscess; cavity cleaned and packed with iodoform gauze; wound dressed daily. The patient improved for three days. On the sixth day bleeding occurred from the nose, which the house surgeon took to be an epistaxis and packed the nares. Death occurred a few hours later. Autopsy showed that the packing had been pushed out of the sinus, and that the hemorrhage had come from the sinus through the Eustachian tube, causing death.

DR. M. D. STEVENSON, Akron, Ohio: I would like to call attention to the importance attached to the microscopic examination of aural discharges in the New York Eye and Ear Infirmary. I learned last winter, from the bacteriolo-

gist there, and from Dr. Dench, that the presence in the discharge of the *Streptococcus mucosus capsulatus* is considered sufficient to justify early operation. The patient may have little or no pain, little fever, no increased polymorphonuclear count and very little, if any, leukocytosis, and yet if this germ is present there is likely to be early involvement of the sinus. After returning home I had my assistant examine the discharge more commonly than before and we discovered only one case. In that case the patient refused the operation suggested, but later I heard he had to have two operations performed. There were practically no other symptoms when I saw him, except the discharge.

DR. SHERMAN VOORHEES, Elmira, N. Y.: This was a primary infection of the bulb, undoubtedly, although I did not find any opening into the bulb. As the last speaker said, I am satisfied that the case came from infection of the bulb. There was absolutely no pus in the mastoid. Except for the cells being congested, there was no affection of the mastoid. I was, unfortunately, denied an autopsy. The diagnosis was made from the high temperature and the sudden drop. When we get a temperature of 105 to 106 F. I think we are justified in exploring to see if the sinus is not thrombosed. The infection must have come from the middle ear.

A CASE OF MYOSITIS OSSIFICANS PROGRESSIVA

ARTHUR R. ELLIOTT, M.D.
CHICAGO

The opportunity of recording the history of this patient I owe to the courtesy of Dr. Lucian D. Clark of Toledo, Ohio, who brought her to me for examination December 7, 1907.

History.—The patient, F. B., was a girl of 17. There had been no other case of myositis ossificans in the family. Both parents were of American birth, living and in good health; no lues, no tuberculosis; two other children were living and in good health, neither of them presenting any developmental anomalies. Birth of patient was non-instrumental and labor was neither prolonged nor difficult. She was breast-fed and did not suffer from any infantile diseases nor exanthemata. At the age of 1 year it was first noticed that the thumbs and great toes were malformed. The mother stated that shortly after the patient entered her second year lumps (nodes) were observed to form on the head. They were never due to injury and appeared and disappeared without apparent cause. They were tender to pressure but never suppurated. At intervals during the succeeding three years similar nodosities developed on the back and shoulders, coming and going, but never entirely absent. At the age of five torticollis appeared and persisted about six months, the muscles of the neck being hard and tender. Subsequently swellings appeared on the arms and legs, interfering greatly with voluntary movements, so that the patient could neither feed herself nor walk. These swellings were painful and tender and more or less ephemeral, shifting from place to place on the extremities, lumps or nodes showing from time to time on the back. These were very sore but never suppurated. Since the age of 5 the patient had never been able to freely abduct the arms and had never in her life been able to comb her hair. When she was about 5 years old her medical attendant discovered the existence of a valvular heart lesion. There had been no previous definite rheumatic or other acute infection. The general health had never been robust, but aside from the special disabilities of her disease there was an entire absence in her history of morbid incident until January, 1907, when she had typhoid fever. In July, 1907, Dr. Clark was consulted for stiffness of the jaws. The jaws were locked so that she was unable to masticate solid food and was compelled to subsist entirely on a liquid diet. The teeth could be separated but very slightly, the submaxillary region being filled with a hard bony deposit. Shortly after this development swellings were observed along both sides of the thorax. These were hard and circumscribed but were not tender to pressure or painful, and were apparently not connected with the ribs. These gradually disappeared. In October, 1907, the arms became stiff and the right elbow joint developed a partial fibrous ankylosis, preventing voluntary movements of the joint and but slight manipulative freedom of the articulation. The right elbow remained uninvolved and freely movable. Gradually the left shoulder became stiff, movements of the left arm on the body being seriously restricted.

There had been little pain throughout, the only subjective discomfort being a certain soreness and tenderness on pressure and manipulation of the indurated areas during the early stage of their formation. The skin over involved areas had at times been suffused and slightly edematous. As the indurations grew harder the soreness would disappear and when fully developed no tenderness was present.

Areas of involvement had been observed to disappear and there had been periods of arrest or quiescence during the progress of the disease. Soon or late, however, fresh areas of induration would make their appearance and run through a subacute progress to firm bony consistency causing much

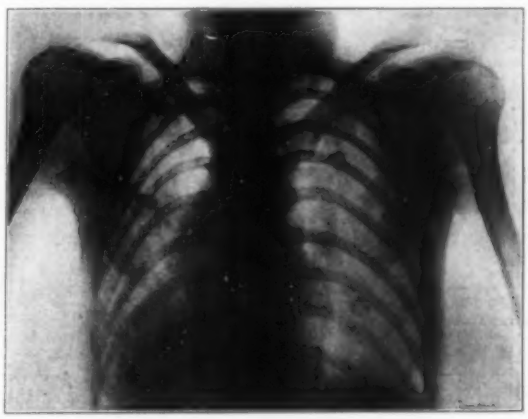

Fig. 1.—Bony induration of the submaxillary tissues; the lower jaw was displaced to one side and the incisor teeth did not articulate. The anterior and posterior muscles of the neck presented more or less induration; the mastoid end of the sterno-mastoid muscle was bony; a hard, insensitive node is shown on the superior border of the left scapular spine and small bony exostoses on the eighth, ninth and eleventh ribs near their posterior angles. A rod-shaped bony mass can be seen lying diagonally in the left pectoral region.

interference with muscular function. Repeated involvement of the same muscular area had taken place with final persistent hardness. There had been slight pyrexia at times. The patient's general health had always been unsatisfactory and her activities seriously compromised. Menses were regular since the twelfth year and somewhat profuse. There had been frequent epistaxis.

General Physical Examination.—The patient's stature was small, her face pale and round, her hair fine in texture and moderately abundant. The first point of interest to be remarked was the posture. The shoulders were rounded, the normal dorsal curve of the spine being increased. The head was bent forward, the chin flexed on the chest and there was but slight passive or voluntary mobility, either lateral or vertical, of the head. There was no hardness or induration of the masseters or other of the facial muscles. There were no cranial nodes. The teeth were well formed, even, with good enamel. The gums were soft and spongy at the teeth borders, bleeding easily, so that a tooth-brush could not be used. Maxillary movement was much restricted, so that it was possible to separate the teeth about an inch only, and the lower jaw was displaced from left to right so that the incisors did not approximate accurately. This restriction of movement and deformity was due to the presence of bony indura-

tion of the submaxillary tissues (Fig. 1). This mass was smoothly continuous with the jaw, reaching around to either angle. The overlying skin was soft and normal in appearance. Swallowing was not interfered with. The thyroid could not be palpated. The muscles of the neck, both anterior and posterior, present more or less firm induration, the mastoid end of the sternocleidomastoid being of bony consistency, while the clavicular insertions of the muscles stood out prominently and were firm but not bony. No glandular enlargements were present. A hard non-sensitive node was felt on the superior border of the left scapular spine. There were small bony exostoses on the eighth and eleventh right ribs and ninth left rib near their posterior angles and also on the crest of the ilium at the left sacral angle. The last was slightly tender to pressure. The body was bowed somewhat forward and rotation of the trunk or head was impossible. The patient could not pick objects off the floor. There was no

Fig. 2.—The spine was rigid. Broad bony masses are seen on either side of the lumbar and lower dorsal spine, as if the erector spinæ muscles were turned to bone, forming two parallel planks with a combined transerse diameter of 10 cm. They were slightly movable.

scoliosis but the spine was rigid. When the patient was lying down, by placing a hand behind the head one could raise the trunk as if the whole spine were a rigid rod. A broad bony mass lying on either side of the lumbar and lower dorsal spine could be felt as if the erector spinæ muscles were turned to bone. This induration formed two parallel planks with a combined transverse diameter of 10 cm. and reached from the sacro-iliac border up well into the dorsal region (Fig. 2). These bony plates were slightly movable and seesawed when pressed on at either end. A very interesting development was apparent in the abdominal muscles of the right inguinal region, where a mass of firm induration about the size of the palm of a hand could be felt. This was of recent origin and was tender to pressure, the overlying skin being suffused and somewhat hyperesthetic. The pectoral muscles were hard and contracted, the arms being locked to the sides so that abduction was impossible. A distinct hard mass could be made out in the body of the left pectoral group (Fig. 1). This mass appears in the *x*-ray picture as a rod of bone, clubbed at both ends, lying in the long axis of the muscle and resembling in shape a child's femur. The biceps of both arms were indurated; no mobility of the shoulder-joints was possible. The deltoids and triceps appeared atrophied. The patient stated that but a few weeks before the arm muscles were much more swollen and hard than at the time of examination. The right elbow-joint was fixed in a position of slight flexion. This was apparently due more to muscular than to intra-articular changes (Fig. 3). A peculiar malformation of the right ulnar head existed. The ulna was about an inch shorter than the radius, to which it was attached by a bridge of bone (Fig. 4). A somewhat similar deformity was noted by Hutchinson[1] in one of his cases. Deformities of both thumbs existed. These consisted of complete bony ankylosis of the terminal phalangeal joints, the second joints being pliable but atrophied and dry (Fig. 5). There had never been any voluntary movement of the thumbs, which were held in a position of flexion on the palms. The thenar eminences were flat and atrophied. The muscles of the legs were much freer from involvement than the trunk and arm muscles, but the patient stated that they felt too short and often became sore and tender. There was some restriction of movement of the hips, knees and ankle-joints. Congenital deformity of both great toes existed. This consisted in the absence of one phalanx, the toes being short and directed outward, lying partly under the second toes, giving the appearance of hallux valgus.

Visceral Conditions.—The skin was dry but not harsh, nipples deeply pigmented, mammæ undeveloped, no general panniculus. Lungs: Examination negative, respiration largely diaphragmatic owing to fixation of the thorax. Pulse 90,

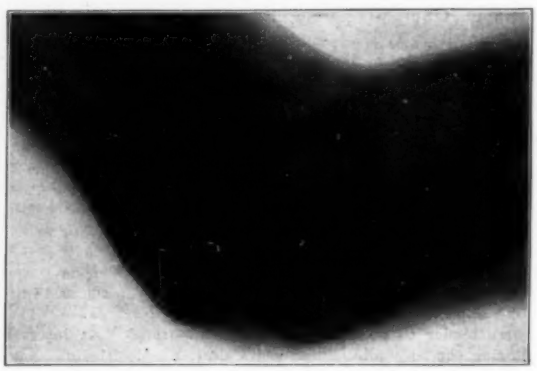

Fig. 3.—Showing the right elbow-joint fixed in a position of slight flexion and a peculiar malformation of the right ulnar head.

regular; temperature normal. Heart: Apex 12 cm. from midsternum; there was a well-marked systolic thrill and the double systolic murmur of aortic stenosis and mitral regurgitation.

Abdominal examination was negative; no splenic or hepatic enlargement. A good view of the throat was impossible, owing to jaw-lock; throat smear showed pneumococci and staphylococci.

Leukorrhea present; vaginal examination not permitted and no smear could be obtained.

Blood Examination.—Specific gravity 1.054, erythrocytes, 4:420,000; Hgb., 75 per cent.; leukocytes, 10,800. Differential count: lymphocytes, 23 per cent.; large mononuclears and transitionals, 5 per cent.; neutrophils, 70 per cent.; eosinophils, 2 per cent.

Blood-Cultures: Two flasks of bouillon, one containing 2 c.c. blood and one 4 c.c., placed in an incubator at 37 C. for seventy-two hours showed no growth of organisms.

1. Hutchinson: Arch. Surg., vii, 1896.

Urine.—Quantity in twenty-four hours, 900 c.c. Sp. gr., 1.020; albumin, minimal trace; sugar, absent; indican, pathologic excess; urea, 20 gm.; uric acid, 0.653 gm. *pro mille;* sediment, cells, cylindroids, oxalates and urates; no casts.

Course of Disease.—The patient was not again seen until February 19. Her condition at that date was as follows: The induration of the biceps and arm muscles had very considerably diminished. The hardness and tenderness in the abdominal muscles previously noted had almost entirely disappeared, leaving only a small, circumscribed, insensitive area of firmness in the right inguinal region. Since last consultation a large sensitive node had formed on the left scapular spine, but this was undergoing resolution. This appearance of sensitive indurated areas and their subsequent gradual disappearance characterized the progress of the case from the beginning. For a fortnight previous to the last consultation there was a slight daily rise of temperature of about 2 degrees Fahrenheit at its maximum. Recent advices from Dr. Clark convey the information that during the two years that have elapsed since my last examination of the patient her condition has undergone no particular change.

The foregoing clinical history is reported because of the great rarity of cases of myositis ossificans progressiva and the interest attaching to its etiology. Since Freke's[2] first clinical report of this disease in 1740, his description, corresponding very closely with that now given, only 107 cases, including the one herewith described, are recorded in medical annals. Doubtless many more examples of the disease have been observed, but have not been made matters of record. For a full consideration of the subject those who may be interested are referred to Münchmayer's[3] classic description of the disease and to excellent monographs by Pincus,[4] Roth,[5] Helferich,[6] and DeWitt.[7] DeWitt's articles furnishes a review of the literature down to the year 1900, adding eleven collected cases to the sixty-seven already gathered by Pincus and Roth, making a total of seventy-eight cases to that date. Walker,[8] in 1908, taking up the records where DeWitt left off, added fourteen reported cases, bringing the total to ninety-two. Since that date thirteen new examples,[9] including the present report, have been placed on record and I have found in the literature four other case histories[10] that have been overlooked in the reviews mentioned, making the grand total 107 cases to January, 1911. But nine of these have been reported from America.

Progressive ossifying myositis is not to be confused with the less rare forms of local ossifying myositis following traumatism and inflammation. Many cases are on record of ossification of single muscles or groups of muscles, sometimes following a single severe trauma, in other cases resulting from repeated injury or prolonged irritation. Under this last head may be included the ossification of the deltoid and arm muscles of soldiers and the thigh muscles of riders. Mention should be made also of calcification occurring in the course of chronic inflammatory processes which may be rheumatic, tuberculous or syphilitic, or due to foreign bodies lodged in the tissues. Myositis ossificans progressiva is distinguished from any of these localized forms by the fact that it commences spontaneously in early life and progressively advances until the muscular system is extensively involved. A further distinguishing feature, if one were needed, is the occurrence in the great majority of these cases of congenital malformation and defect which shall be presently described.

Most of the recorded cases of myositis ossificans progressiva can be traced back to early childhood, the majority beginning before the tenth year. Owing to the masked character of the symptoms during its early stage it is often impossible to fix the exact date of its origin. The earliest signs of ossification reported occurred at 4 days after birth, at 3 months, 8 months (Wilkinson), and 3 months (Horand). Cases have been noted as beginning at a later period of life. Thus Kroneker relates the case of a woman in whom the disease began at 54.

Although of slow development and prolonged course the disease advances along definite lines to a uniform termination. This fact alone would suffice to establish the disease as a pathologic unit. The course of its development is about as follows:

Fig. 4.—The right ulna presents a peculiar malformation, being about one inch short and being attached to the radius by a bridge of bone.

A child otherwise in good health develops a local swelling of tender character in some part of the muscular system, usually the neck, producing a condition which may be mistaken for torticollis, or the back or shoulder, pectoral or abdominal groups of muscles may be first affected. The involved area is indurated and may be the seat of local and radiating pains, and the overlying skin is not infrequently suffused and sensitive. After a period of several weeks, during which the local symptoms slowly abate, the swelling may disappear, leaving the muscle more or less indurated, a condition which is sometimes temporary but may remain permanent. A series of recurring attacks of myositis may affect the same area, finally producing a bony hardness of the muscle. During the course of years successive localizations of this character occur until a condition of deplorable deformity and crippling results. The joints may become fixed and greatly restricted in pliability, not by true ankylosis, but by the rigid bars of bone formed in the substance of the muscles acting on them. In this manner deflections of the spinal column, flexions and rotations of limbs occur. From pressure and irritation

2. Philosoph. Trans.
3. Münchmayer: Ztschr. f. rat. med., 1869, xxiv, 9.
4. Pincus: Deutsch. Ztschr. f. Chir., 1897, xliv, 179.
5. Roth: München. med. Wchnschr., 1898, xlv, 1238, 1279.
6. Helferich: Aertztl. Int.-Bl. München., 1879, xxvi, 485.
7. DeWitt: Am. Jour. Med. Sc., 1900, cxx, 295.
8. Walker: Tr. Coll. Phys., Phila., Series 3, xxx, 121.
9. Nitch: Proc. Royal Soc. Med., 1907-8. Dighton: Edin. Med. Jour., April, 1908, p. 344. Garrod: St. Barth. Hosp. Rep., 1908, xliii, 43. Maxwell: Brit. Med. Jour., 1907, ii, 1647. Painter and Clark: Am. Jour. Orthop. Surg., Phila., 1908-9, vi, 626. Meltzer: München. med. Wchnschr., 1909, vi. Thompson: Proc. Royal Soc. Med., 1909-10, iii, No. 6, Chir. Sec. 151. Hart: Med. Cor.-Bl. württemb. ärztl. Landesver., Stuttg., 1909, lxxix, 908. Elliott, Geo. R.: Am. Jour. Ortho. Surg., 1910, vii, 332. Person: Khirurg. Arkh. Velyaminova, St. Petersb., 1910, xxvi, No. 60, p. 168. Mitchell: Jour. Nerv. and Ment. Dis., Lancaster, Pa., 1910, xxxvii, 547. Peteri and Singer: Fortschr. a. d. Geb. d. Röntgenstrahlen, xv, part 6.
10. Burton Fanning: Lancet, London, 1901, ii, 849. Gillette: St. Paul Med. Jour., 1906, viii, 165. Krause and Trappe: Verhandl. d. deutsch. Röntgen Gesellsch., Hamburg, 1907, iii, 162. De Reinzi and Fittipaldi: Gaz. d. osp., 1903, xxiv, 118.

the overlying skin and cellular tissues may slough, forming ulcers and exposing the patients to septic accidents. In Linden's case the discharge contained gritty particles of bone and small sequestra. Sometimes large, deep abscesses are met with, doubtless due to irritation set up by sharp spiculæ of bone (Rogers, Stoneham).

The distribution of the changes in the muscles is almost always the same, the trunk, upper extremities and neck being the seats of involvement. Rarely do bony plates appear in the legs, and the hands and feet are always exempt. The ossification of the muscles of the neck has caused the disease to be mistaken for torticollis and suboccipital Pott's disease. Of the facial muscles the masseters alone have been involved, this constituting a grave development by interfering with alimentation. A very frequent accompaniment or precursor of the myositis is the appearance of exostoses. These are most frequently seen where the long bones approach the surface; i. e., the anterior surface of the tibia, the ribs, the skull, etc.

One of the most striking and peculiar features of this interesting disease is its association with certain congenital deformities. This point was first noted by Gerber, but Helferich[9] emphasized the association as a

Fig. 5.—The thumbs were fixed in a position of flexion on the palms of the hands and could not be voluntarily moved. The terminal phalyngeal articulation of right thumb has undergone bony ankylosis.

chief characteristic of the disease, and since then 75 per cent. of cases reported have shown the peculiar congenital malformations. These consist of microdactylia, a shortening of the great toes and thumbs, and, more rarely, the little fingers, due to a dwarfing of the metatarsal and metacarpal bones, with subsequent ankylosis of the interphalangeal joints. This gave the false impression before the *x*-ray was used that one phalanx was absent. The great toes are often directed outward and frequently lie under the second toes, giving rise to the deformity of hallux valgus. Other less frequent malformations are absence of certain muscles, absence of lobules of the ears, absence of superior incisor teeth, atrophy of testicles, and mammæ, and sexual infantilism. It is interesting to note that deformities of the hands and feet were observed in the father of Sympson's[11] patient, although he did not develop the disease.

Myositis ossificans progressiva is essentially a chronic disease, subject, however, to exacerbations. An exception to this rule is noted by Ferraton,[12] who observed a patient who was able to eat in a perfectly normal manner on going to bed, but on rising in the morning found it impossible to open the mouth owing to involvement of the masseters, and at the same time noticed a hard tumefaction in the right masseter. The usual history of the disease is a slow progression with longer or shorter pauses, the general health as a rule remaining good until increasing disabilities interfere with feeding and respiration, or on account of the latter disturbance some pulmonary infection develops. The average duration of the disease is from ten to fifteen years.

The clinical course of every case observed leaves no doubt that myositis ossificans progressiva is an inflammation—a progressive polymyositis—terminating eventually in certain of the involved areas in ossification. In the case just reported I had the good fortune to observe an acute involvement of a very definite character in the parietal abdominal muscles. There were present all the signs of an ordinary acute myositis. Three months afterward, all indications had disappeared, the former involved area appearing normal in all respects. It is a matter of record that indurated areas that have existed for some time have undergone resorption, to the surprise of the observers. Although there is little to distinguish the individual lesion in its earlier course from an ordinary myositis, the disease becomes stamped with a special character when its course is followed for any period of time. A striking feature is its association with exostoses of the skull, ribs, scapular spines and ilia, which furnish proof of a tendency to aberrant bone formation, this later being further exemplified by the depositions of bone in the affected muscles. The congenital developmental defects constitute a very interesting feature, as they would appear to indicate the operation of a predisposing factor of congenital origin. The sequence of histologic changes through which the soft tissues pass to bone have been repeatedly observed and are exactly similar to those described in myositis ossificans traumatica. From the periphery to the center of the implicated area a sequence of fibrotic changes are apparent, passing through fibrocartilaginous transformation to osteoid trabeculation and calcification. New connective tissue, cartilage, osteoid tissue and bone are found in the same section. The new formed osseous plates possess the same histologic and chemical characters as does true bone.

Many theories have been advanced to explain the etiology of this extraordinary disease, but with little success at solving the problem. The disease cannot be classed with other conditions in which bone formation is observed as a terminal development, such as calcification in degenerated arteries, about old foci of tuberculosis, around foreign bodies, etc. These are but instances of the metaplasia of connective tissue and as such have eventuated in new formation of bone in nearly every tissue and organ of the body. The lesions of myositis ossificans are confined to the skeletal layer of the mesoblast. The visceral layer is never affected. There is no direct heredity. The only instance on record of occurrence in two generations of the same family is a case reported by Burton Fanning.[10] The father of Fanning's patient had suffered from myositis ossificans progressiva, dying at 33 from an accident.

No exciting cause but injury has been established as the starting point of the disease. In a few instances injury has certainly produced local ossification and proved the apparent inception of the disease. In four of thirty-eight cases collected by Pincus the onset is plausibly ascribed to injury. The site of the lesions in most cases is, however, opposed to this idea and in the overwhelming majority of cases no such explanation can be entertained. There is no doubt, however, that after the disease is well under way traumata that in normal indi-

11. Brit. Med. Jour., ii, 1886, p. 1026.
12. Ferraton: Rev. d'Orthop., 1903, Series 2, iv, 302.

viduals would produce no such result are followed by myositis and ossification. It is interesting to note at this point that research into calcium metabolism undertaken by Austin[13] on one of Painter's patients showed a perfectly normal calcium metabolism.

Without entering into details regarding the many theories that have been advanced, it may be mentioned that it has been thought to be a form of rheumatism (Stoneham), a trophoneurosis (Nicholadoni, Eichorst, etc.), a new growth (Mays, Zeigler), a form of atavism (Brennsohn), while Hutchinson claims it to be a morbid tissue perversion analogous to retinitis pigmentosa and xeroderma pigmentosum. None of these theories meets with acceptance, the present trend of opinion being toward the view that owing to some disposing factor of congenital origin—indicated by so large a percentage of microdactylia and exostoses—the muscles seem to be endowed with very low resisting power and are consequently highly susceptible to inflammation from various exciting causes which ordinarily would not so operate, such as injury, chemical and bacterial irritants, etc. Combined with this low resisting power of the muscles there is a morbid disposition to aberrant bone growth which shows itself in the calcification and ossification of inflammatory products.

Herringham, in sympathy with Pincus, finds many points of resemblance to multiple fibromata, namely, multiplicity, limitation to certain mesoblastic areas, and benignity. They are both also congenital, increasing by gradually attacking fresh areas, but always growing from one tract of tissue, never involving any other by continuity or metastasis. The chief stumbling-block to acceptance of this idea is the existence of congenital deformities found in 75 per cent. of cases. These mark the disease as peculiar, and it is difficult to connect them with new growth. In this extraordinary disease we appear to be on the borderland between malformation and new growth.

I gratefully acknowledge my indebtedness to Dr. R. W. Webster for assistance in reviewing the literature.

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FIBROMA OF NOSE

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History.—The patient, H. B., aged 72, American teamster, had no remarkable family history. He had grip and severe pneumonia sixteen years ago; otherwise his personal history was negative. He admitted very free use of gin for thirty-eight years, but since 1905 he had taken not more than two drinks each month(?). About fifteen years ago he noticed a small red spot under the skin on the right side of the nose. The redness increased gradually until it covered the whole nose; then he noticed it was beginning to enlarge. The growth was very slow and gave him no inconvenience, except the appearance, until one month before he was seen. About this time he had dragging pain over the eyes, dizziness, frontal headache and when leaning over to lift boxes, etc., he would lose his balance and fall. These symptoms led him to seek relief. Previous to this time he had many strange ideas, that he ought not to part with the tumor, that he would bleed to death or die in some other way if it was operated on.

Fig. 1.—Front view of fibroma of nose.

Physical Examination.—The patient proved to be a remarkably strong healthy man, although 72 years of age. A lobulated mass 7.5 cm. lateral and 5 cm. vertical, was found firmly adherent to the lower three-fourths of the nose. It was somewhat larger and more dependent on the left and obstructed the field of vision, except upward and outward. It was firm to the touch and could be lifted away from the mouth, which it almost completely covered. Figures 1 and 2 make further description unnecessary.

Fig. 2.—Side view of fibroma of nose.

Operation.—Under ether the growth was removed, an especially sharp scalpel being used. The rough and irregular tissue was shaved down to correspond to his normal nose, but in spite of much care, the right adherent ala was partly removed. The bleeding was very profuse but controlled by pressure and cautery. Four weeks were required for healing, and the patient would not allow skin-grafting to cover in the lower part of the left ala. Macroscopically, it was thought to be a fibroma—the end-result of an acne rosacea—and the microscope confirmed this diagnosis.

Fig. 3.—Same patient after removal of fibroma of nose.

90 Main Street.

13. Painter: Jour. Med. Research, n. s. xvi, 451.

SURGERY OF EXPERIMENTAL LESION OF SPINAL CORD EQUIVALENT TO CRUSH INJURY OF FRACTURE DISLOCATION OF SPINAL COLUMN

A PRELIMINARY REPORT *

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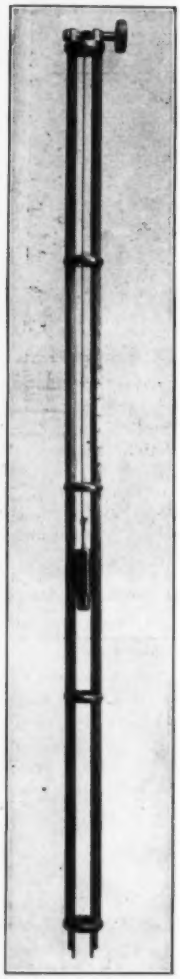
PHILADELPHIA

PREFATORY REMARKS

In two former papers I have dwelt at length on the mechanical considerations of injury to the spinal cord in cases of fracture dislocation of the spinal column.[1, 2]



Instrument for producing a measured impact on the spinal cord.

In this communication, therefore, I shall limit myself to the discussion of the experimental work in which I have been engaged for the past year in the laboratories of the University of Pennsylvania.

I would accentuate the fact that this is a preliminary report and that I am fully aware of the amount of control experimentation necessary before an *ex cathedra* statement can be made as to applicability of this work in the human subject.

MEASUREMENT OF IMPACT ON SPINAL CORD IN SPINAL FRACTURE DISLOCATION

In order to arrive at an adequate concept as to the amount of impact a spinal cord could receive and yet recover its function, I designed an instrument whereby a given weight could be dropped from a known height thereby producing a given impact (see the accompanying illustration).

A dog having been thoroughly anesthetized, a laminectomy is performed, the instrument placed in position and the weight dropped on the spinal cord. The resulting impact in gram-centimeters is the product of the height in centimeters and the weight in grams. The element of friction in the instrument is so inconsiderable that it may be regarded a negligible quantity.

HYPO-IMPACT AND HYPERIMPACT

In my work I have used dogs varying in weight from 7.5 kilos to 18 kilos. The laminectomy has been performed in the lower third of the thoracic region.

I have found that a weight of 30 gm. may be dropped on the spinal cord from a height not exceeding 11.5 cm. with every expectation of an uninterrupted recovery on the part of the animal. The resultant of 339 gram-centimeters is one wholly in accord with complete autorestoration.

So soon as we exceed an impact of 340 gram-centimeters (to speak in round numbers) we obtain symptom pictures of more serious import.

Whereas an impact of 340 gram-centimeters will produce a complete paraplegia of spastic type, which, in course of a week or ten days, will have largely disappeared, so soon as we begin to use impacts of greater magnitude, we find the symptoms more severe and more lasting. Most animals injured by a 420 gram-centimeter impact will present a serious symptom picture; complete spastic paraplegia with scissor-like crossing of the hind limbs, emaciation, paralysis of the bladder and rectum and trophic lesions. An impact of 450 gram-centimeters will produce a symptom picture of complete transverse lesion of the spinal cord and the animal will die in the asthenic and toxic state so familiar to all who have had experience with fracture dislocation of the spinal column in the human subject.

I therefore term all impact below 340 gram-centimeters "hypo-impact," and all impact above this amount "hyperimpact."

THE HYPOTHESIS OF SYMPTOM-COMPLEX OF TRANSVERSE LESION OF THE SPINAL CORD IN FRACTURE DISLOCATION OF THE SPINAL COLUMN

Without restating *in extenso* the views concerning pressure on the cord from fragments of bone or the intramedullary pressure of hemorrhage or edema, with which views I have dealt in previous articles, I would say that I consider it a very uncommon occurrence to find a passive impingement of bone on the spinal cord when the operation of laminectomy is performed for fracture dislocation.

We must assume one of two theories, or probably both, in the etiology of cessation of function in the spinal cord in those cases in which the cord has not been literally cut through: Either there is a destruction of axis cylinders directly consequent to the impact, or else, owing to the impact, there is an edematous and hemorrhagic outpouring into the cord tissue, which by its pressure and chemical activity inhibits temporarily all conduction function, or destroys permanently the spinal cord.

In suggesting a possible treatment to aid and abet an autorestoration, it is obvious that the hypothetical factor of direct injury to the axis cylinder by the impact is beyond our reach, and that we should better confine our attention to the amelioration of the heightened intramedullary pressure.

This has been tried in years past by various means, such as cupping and other antiphlogistic devices. But the amount of benefit obtained has always been open to much doubt and in the fortunate cases, where restoration has taken place, the surgeon has found himself unconsciously imbued with a *post hoc non propter hoc* feeling.

THE SYMPTOM-CONTENT OF LONGITUDINAL SECTION OF THE SPINAL CORD

In order to ascertain the symptom-content of longitudinal section of the spinal cord, I performed laminectomy on a number of dogs. The dura mater was incised in the median line and held apart gently by means of traction sutures. Then with a very fine canaliculus knife longitudinal incisions from 2 to 3 cm. in length

* From the Department of Experimental Surgery and the Department of Neurology in the University of Pennsylvania. Read at the thirty-seventh annual meeting of the American Neurological Association, Baltimore, May 11-13, 1911.

1. Allen, A. R.: Injuries of the Spinal Cord, THE JOURNAL A. M. A., March 21, 1908, p. 940.
2. Am. Jour. Med. Sc., May, 1908.

were made. In some cases a single incision in the median line, in others, bilateral incisions from the emerging posterior roots forward and inward were made. The incisions were carried completely through the cord. When the dogs came out of ether, they were able to stand and walk, showing very little weakness or awkwardness in walking. There was very little, if any, exaggeration of the reflexes of the hind limbs. A few days sufficed for the animal to recover his normal motor capabilities.

This finding is at variance with the teaching of some of the older physiologists, who have reported paraplegia of spastic type after this procedure.

I cannot but believe that when paralysis ensues after this operation, it is most likely due either to cutting the cord obliquely owing to faulty technic, or else is secondary to inflammatory change from imperfect aseptic precautions. From this work I conclude that median longitudinal section of the spinal cord of the dog is provocative of no symptom of note.

EXPERIMENT OF MEDIAN LONGITUDINAL INCISION IN CASES OF HYPERIMPACT

Given, as the hypothesis, that there is a twofold factor after the impact: (1) the direct injury to axis cylinders from the impact; (2) the outpouring of serum and blood into the substance of the cord; given the condition of the closely investing pia-arachnoid and the inability of drainage; given the comparative absence of symptoms after median longitudinal incision into the cord — the corollary which presented itself was: What effect would a median longitudinal incision into the spinal cord have on subjects submitted to hyperimpact?

The factors suggesting this course were the need for spinal cord drainage, thereby accomplishing a spinal cord decompression, and the fact that the heteromeric neurons in the dog and in man are not of vital importance.

In five dogs I have used a hyperimpact of 540 gram-centimeters (30 gm. at a height of 18 cm.), and then made a median longitudinal incision from 1 to 1.5 cm. in length directly through the impact level and passing altogether through the spinal cord. These dogs made uneventful recoveries, in the worst instances showing only a slight spasticity and awkwardness in the hind limbs after recovery, but not enough to prevent running and jumping.

This impact would have led to the dire consequences which I have pictured above, had not the median longitudinal incision been made. The dogs would have died had not the spinal cord been drained.

DETAILED DESCRIPTION OF OPERATIVE PROCEDURE

An incision of about 6 cm. is made over the spinous processes down to the fascia. The fascia is incised and the muscles pushed well to the side by means of a periosteal elevator. Three spinous processes are cut off by means of bone forceps, and then the lamina of one vertebra is sawn through on each side and the fragment of bone elevated and removed. Further enlargement is obtained by means of specially fashioned rongeur forceps. It is necessary to have at least 3 cm. of the cord exposed so that careful observation can be made. The epidural fat is now wiped away, the impact instrument adjusted and a strong reading-glass focused on the segment of the cord to be struck. The blow is struck, and there is a single jerk of the lower extremities.

The instrument is instantly removed, when it is noted that instead of the cord being the natural color and the dura mater showing as an almost transparent covering through which the small vessels are easily visible, we have now to deal with a dark bluish-purple, swollen mass. I now take a very fine curved needle, and clamping it in a pair of mosquito hemostats I use it as a tenaculum to lift the dura preparatory to incising it centrally. If this incision be carefully made, there at once bulges out of the opening of 2 cm. a dark, beefy-red mass. This is the greatly distended pia-arachnoid. This hyperdistention of the pia-arachnoid extends longitudinally about 4 cm., and when torn by means of a fine tooth forceps it subsides in a great gush of blood and cerebrospinal fluid. It will now be seen that the substance of the cord appears pinker than it should normally.

A median longitudinal incision of at least 1 cm. is made completely through the cord, following which there is a goodly outpouring of blood and serum from the cord substance.

After the active bleeding ceases, the muscles are brought together by a close row of buried Pagenstecher sutures. The fascia is closed by means of a continuous Pagenstecher suture and the skin wound by means of Michel clamps. The dura mater in the dog is too tight to warrant trying to suture it, as would most certainly be indicated in man.

The dog is completely paraplegic following the operation, and it may be three or four days before there is any indication of return of power. In a week's time he is standing and moving about his cage with a very spastic gait. Little by little the power returns and the spasticity diminishes. The end-result is a complete restoration of motor power. The animal is able to run and jump and has complete control of bladder and rectum.

The only point in the convalescence which may give trouble is the development of what I might term an artificial spina bifida. Owing to the difficulty of closing the dura mater in the dog, there is a leakage of cerebrospinal fluid upward forming a fluctuating tumescence, possibly the size of an egg, at the seat of operation. This it is my practice to evacuate by means of an aspirating needle under the most stringent aseptic precautions.

This experimental work has been carried out under full ether or cloroform anesthesia; and at no time have the dogs given evidence of suffering pain.

GENERAL CONSIDERATIONS; OUTLINE OF FUTURE WORK IN THIS FIELD

There are many steps between the results above mentioned and the adoption of the median longitudinal incision through the injured area as a desirable method of procedure in cases of spinal cord injury in fracture dislocation in the human subject.

The first important step to determine is: How long after the injury to the dog's spinal cord can one wait and still obtain the good effect of the drainage from median longitudinal incision?

I shall conduct a series of cases of hyperimpact in which the median longitudinal incision is made two, four, six and twelve hours after the impact; then a series in which a period of twenty-four hours elapses before the cord is cut.

I have already tried to aid the drainage by applying a Bier stasis-hyperemia cup over the laminectomy area the day after the impact operation of median longitudinal incision had been performed. This I applied for half an hour twice a day, but the result was most unde

sirable. The dog showed every symptom of complete transverse lesion shortly after the first treatment and died about four days later. On histologic examination, I found the gray matter of the cord greatly softened and hemorrhagic for a distance of 2 cm. above and 2 cm. below the impact area. It looked just as if the gray matter, naturally lacking in *Widerstandsfähigkeit* (resisting power) had given way to the negative pressure.

Of course, this is only one case in which the Bier's method was used. It is altogether possible that, with a more gentle suction, a better or favorable result might have been obtained.

I wish to call attention to a point which has impressed me greatly in all this work. I refer to the effect of severe hemorrhage during the operation on the period of convalescence.

Hitzig[3] has shown the baneful effect of exsanguination on the central nervous system. I also have noted in a previous work the great change in conductivity in the lateral columns of the spinal cord in animals (dogs) slowly exsanguinated.[4] There is no doubt to my mind that whenever I had much hemorrhage, the animal's convalescence was prolonged, his spinal cord symptoms more severe than the impact would warrant and the chances of an infection greatly augmented. I am convinced that this is an important element in the failure of operations on the brain and cord.

It is not my purpose to take up the histopathology of this work until a future communication. I shall only say that I have been surprised at the amount of ascending and descending degeneration that I have found by the Marchi method in the spinal cords of dogs which had recovered their motor power completely and which I had killed in order to make the histopathologic study.

My tentative conclusion is that in cases of fracture dislocation of the spinal column in the human subject, in which there exists the symptom picture of transverse lesion of the spinal cord, it were well to perform the operation of laminectomy at the earliest possible moment, and if the cord be not completely severed to make a median longitudinal incision through the area of impact by means of a fine canaliculus knife in order to drain the injured tissue of the products of edema and hemorrhage.

2013 Spruce Street.

Protective Detention.—Dr. Quinton, an English criminologist, is quoted by G. A. Auden (*Jour. Crim. Law and Criminology*) as saying: "Female offenders who are of weak intellect will gain incalculable benefit from the scheme of the royal commission, which provides for their removal from prison altogether. This class—a very pitiable one—never has been, and never can be, rationally dealt with under a short sentence system. Their vicious habits and criminal propensities soon alienate them from relations and friends who in despair of controlling them, abandon them to their fate—picking up a living on the streets. Petty thieving, drunkenness and prostitution bring them back to prison time after time, their only gain from imprisonment being the protection it affords them for the time being from the perils of the street, which, in the case of feeble-minded girls and women, are appalling. They need not only preventive but protective detention in some kind of institution other than the prison, for a much longer period than any term of penal servitude their offense would justify."

3. Hitzig: Physiologische und klinische Untersuchungen über das Gehirn, Berlin, 1904, part 1, p. 23.
4. Allen, A. R.: Hemorrhage Into the Ventricles, THE JOURNAL A. M. A., July 18, 1908, p. 216.

SEVERAL UNUSUAL JOINT CASES

THEIR TREATMENT AND THE RESULTS *

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In reporting the following rather unusual cases I claim no originality, but simply aim to show what thorough asepsis, accuracy of adjustment and secure fixation will accomplish.

I make no reference to a rather large number of other fractures occurring in a field in which traumatism contributes greatly to the work of a surgeon, including fractures of the patella, nor to cases of delayed union, and ununited fractures occurring in the shafts of bone in which the open method and direct fixation have been called into use.

CASE 1.—The first case may be summarized as follows: Complete separation of the right olecranon, extensive injury of the soft parts, nailing, straight splint; complete restoration of function.

The patient was a male, aged 17, a pattern maker's apprentice. The injury was received by elbow joint coming in contact with a band saw; wound in soft parts 4 inches long across posterior aspect of elbow; olecranon severed ¾ inch below upper end; trochlear surfaces of joint scratched by saw; fragment of olecranon retracted by triceps. Reduction was effected by placing the arm in a straight position; fragment secured in place by driving a cast-steel wire brad, 1½ inches, No. 16, through fragment and into shaft of ulna (Fig. 1); wound closed with interrupted silk sutures, skein of catgut for drain, and straight anterior splint applied; wound healed without suppuration; nail was removed when it became loose, probably in the third week. Figure 1 shows the nail in position. The operation was done in the boy's home on a common kitchen table, a range for a sterilizer, a dish pan for instrument tray, in which instruments, nails, tack hammer, all were thoroughly sterilized. Passive motion was begun at the end of five weeks; six months after the injury the functions of the joint were perfect. Figures 2 and 3 show the limb in straight position and full flexion.

Fig. 1.—Method of fixing the broken fragment of the elbow joint in Case 1; the wire nail in position.

CASE 2.—The patient, a boy aged 10, was thrown from a horse while riding in the street; both condyles separated, probably an inch above the lower end of the humerus; distal end of proximal fragment thrust through soft parts in front of joint. Every precaution to produce an aseptic condition was taken. Complete reduction under anesthesia was effected by inserting fingers into the wound and securing perfect apposition of fragments, forearm was flexed on the arm and secured by a strip of adhesive plaster; the external wound was then dressed, and the upper extremity bound to the side of the body without a splint, as practiced by Mr. Robert Jones. Improvement was rapid and satisfactory; wound remained

* Read in the Section on Surgery of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

surgically clean; passive motion commenced at the end of the fourth week.

Result: A complete restoration of function without deformity, as Figures 4 and 5 will show.

CASE 3.—This is the analogue of the first case. The patient, aged 42, a foreman carpenter, was at work on a scaffold at the second story of a building; a freshly ground hatchet lay on the floor of the scaffold. The scaffold fell, and when the patient was found, the hatchet had severed the head of the left tibia ¾ inch from the articular surface. The line of division extended three-quarters through the bone, then split upward into the joint. The incision in soft parts was 5 inches long. The severed fragment was secured in perfect position by two silver nails driven through the fragment into the shaft of the bone, the ends protruding from the upper flap of the wound about two inches; severed patellar tendon, ligaments, and other soft parts were closed with catgut, aseptic dressings applied and the whole limb encased in a plaster cast. The nails became loose in two weeks and were removed; cast removed at the end of four weeks, and passive motion commenced. Here the healing was without suppuration.

May 13, 1911, the patient came to my office; motion of left knee as good as in the right; conformation perfect, no difference to be observed. Illustrations (Figs. 6 and 7) taken May 13, 1911, confirm this.

CASE 4.—Patient, a woman, aged 48, 5 feet 2 in. in height, when she could stand erect, weighing about 160 pounds, came into my office in November, 1909, walking like a duck; legs flexed on thighs at an angle of 45 degrees, and ankylosed; for fifteen years she had had what was called rheumatism. The left elbow joint and the knuckles of right hand were, also, partially ankylosed, and the joints enlarged; also left bunion joint. An acute attack five years before was accompanied by chills, fever (temperature 105 F.), sweating, etc. The patient had always been regarded otherwise as a healthy woman. The menopause occurred at 39. The joints became fixed four years previously and had remained so. She had been treated in sanatoriums with baths, massage, electricity, etc. Her mother had had rheumatism in her knees.

The skiagraphs (Figs. 8 and 9) showed a considerable amount of exudate, and both patellas fastened by what appeared to be bony adhesions.

Fig. 2.—The result in Case 1, the arm held straight.

Fig. 3.—Showing the result with the elbow flexed in Case 1.

Fig. 4.—Showing result in Case 2, separation of the condyle of the humerus, the distal end of the proximal fragment having been thrust through the soft parts in front of the joint; complete restoration of function without deformity.

Fig. 5.—Showing result in Case 2 with the elbow flexed.

Fig. 6.—Accidental excision of upper end of tibia with healing and restoration of function, Case 3.

Fig. 7.—Showing result in Case 3 with knee flexed.

What to do for her was a puzzle. Forcible extension under ether would be attended with great danger to the soft parts, especially the blood vessels; tenotomy would be equally dangerous. Assisted by my son, Dr. Donald Guthrie, I operated Dec. 6, 1909; semi-circular incisions were made across the knees above the patella and through the tendons; on separating the left patella from the head of the femur, the articular surfaces were so injured that the patella was removed. The next step consisted in removing about an inch of the lower end of the femur with a mallet (a potato masher) and a broad-bladed chisel. It was found then that the leg was quite easily straightened. A similar procedure was followed in the right side, except that the patella was not removed; both wounds were closed with catgut, without drainage, and plaster casts applied, and allowed to remain six weeks. Healing was satisfactory and good firm legs were secured.

Figs. 8 and 9.—Skiagraph showing complete ankylosis of knee-joints in Case 4.

Fig. 12.—Skiagraphs showing the very satisfactory apposition secured in the compound, comminuted fracture at the wrist-joint in Case 5.

Present condition: The left knee is flexed about 10 degrees and fixed; the right is straight and has a motion of about 10 degrees. The cosmetic results are not the best, but the function of walking has been restored; the patient no longer walks like a duck, but stands upright like a human and goes everywhere, up and down stairs, all over the house, walks the streets, visits her friends, goes to weddings, and is a very happy woman (Figs. 10 and 11).

Fig. 10.—Anterior view of knee-joints following operation in Case 4.

Fig. 11.—Lateral view of knee-joints in Case 4; left knee-joint fixed at an angle of ten degrees; right knee has motion of ten degrees.

I know the conduct of this case admits of argument: It may reasonably be asked whether we did the best thing for the patient under all the circumstances. Would it have been better to have attempted joint action by interposing a flap of fascia between the ends of the bone? Our reasoning was this: The first demand is a firm, strong knee-joint; the second, a straight leg; and the third, motion if possible.

Here was a patient, with a bad history for five years, weighing 160 pounds. A weak, flail-like joint would render her latter condition far worse than her former. We were painfully aware of the risk we assumed, but our asepsis was good, healing was kind, and good, firm knees resulted. A 10 degree flexion in the left does not interfere with her

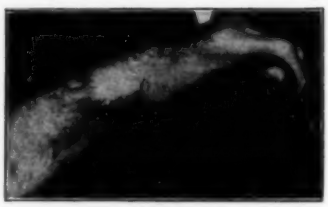

Fig. 13

Fig. 14

Figs. 13 and 14.—Two photographs showing the cosmetic result secured in Case 5.

walking, and the same degree of motion in the right makes them correspond. I invite discussion and criticism.

CASE 5.—This patient, aged 40, a painter of tall chimneys, stacks, etc., was brought into the hospital Sept. 2, 1910. He had fallen from a ladder 25 feet to a roof, thence to the ground, 15 feet. The right wrist presented an alarming condition of traumatism: a Colles fracture of the radius; the ulna was driven through the soft parts on the front aspect of the wrist, protruding 1½ inches; the styloid process was broken off, and the articulating surface comminuted. It was one of the worst-looking injuries I have ever seen.

Ether was administered; the fractured end of the ulna was trimmed up; then the dislocation was reduced, and with fingers in the wound, the fragments of the radius were accurately replaced. I held them in this position while my intern, with a good pocket knife, fashioned the splints according to my direction. The palmar splint was narrowed at the location of the external wound so as to admit of a change of dressing; the posterior splint made no pressure over the end of the ulna.

Healing was satisfactory, and June 3, 1911, the patient presented himself with the following result: The end of the ulna was much thickened from a superabundance of callus, pushing the hand to the right side; pronation, supination, flexion, and extension are all present, and he has a good degree of flexion of the fingers—not perfect, but improving.

The accompanying skiagraph (Fig. 12) was taken, and shows the very satisfactory apposition secured, and the accompanying photographs (Figs. 13 and 14) show good cosmetic results.

109 South Franklin Street.

A SIMPLIFIED PERITONEUM-GRASPING FORCEPS

JOSEPH RILUS EASTMAN, M.D.
INDIANAPOLIS

The abdominal viscera forceps here illustrated is not essentially different, so far as its efficiency or field of application is concerned, from other viscera forceps now in use. Its advantages rest in the ease with which the rubber tubing at the circular jaws may be replaced when worn or damaged in sterilizing, the security of the grasp, and in its durability.

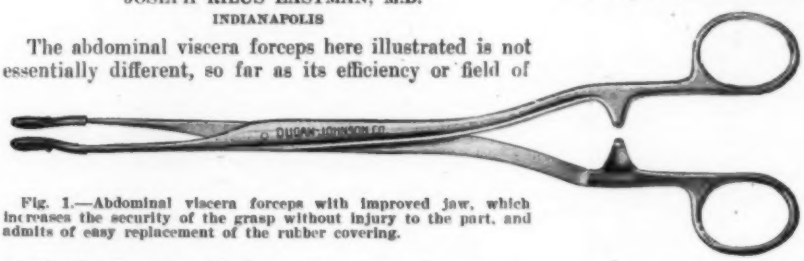

Fig. 1.—Abdominal viscera forceps with improved jaw, which increases the security of the grasp without injury to the part, and admits of easy replacement of the rubber covering.

The short elbow curve of each shank above the circular jaw allows complete coaptation of the rubber-covered rings, so that pressure is not brought to bear at a point, but over a larger area of the intestine, or other peritoneum-covered viscus.

Fig. 2.—Showing the folding back of the end of the forceps blade and the short elbow curve of the jaw, which allows of pressure over a larger area of intestine. The rubber tube covering is also shown.

The steel of the instrument is so tempered that crushing of delicate tissue is practically impossible. The grasp, however, is firm enough to be reliable.

Sterilization by heat soon ruins the rubber of gut forceps, or renders it sticky. Therefore, it is desirable that the rubber be easily changeable. In the forceps shown in the drawings, small red gum tubing may be passed over the open rings and slipped off as often as required. The "heels" of the open ring are turned back in order that the ends of the tubing may be deflected from the grasping surfaces. For the same reason the tubing should be slipped along the forceps far enough to bring the proximal ends of the rubber covers over the elbow curve, and a short distance along the shank.

331 North Delaware Street.

BONE-GRAFTING TO FILL A GAP BETWEEN TWO PORTIONS OF A TIBIA*

F. A. McGREW, M.D.
LAPORTE, IND.

History.—At 11 p. m. of a day (Aug. 10, 1909) during which a little girl, 6 years old, had been wading in the water, she was taken with a violent headache and high fever. She seemed somewhat better the next day, but vomited in the afternoon. Forty-eight hours after the first symptoms appeared she grew worse again, had severe headache and high fever, with pain in the left side of the chest. A physician was then called. After a few days the pain disappeared from the left side and "moved across" to the right.

About a week later she had terrific pain in the right leg, or, as it seemed to the attending physician, in the knee-joint. She suffered "frightful pain" for a week, meanwhile undergoing treatment on a mistaken diagnosis of rheumatism. The knee and leg below the knee swelled, and a bulging abscess having appeared over the front of the leg below the knee, she was brought to the hospital and incision made for drainage. A few days later I was asked to see the patient in consultation.

The leg was much swollen on account of cellulitis. There was a small pre-tibial knife opening just below the patellar tubercle, through which pus was discharging. The leg was drawn up in extreme flexion, and when any attempt at movement of it was made there was every evidence of excruciating pain. The general condition was one of septicemia.

I advised free drainage of the tibial shaft, and the application of a posterior splint after straightening the leg under anesthesia, dressing slightly flexed. Only the latter part of the advice was followed. The child gradually improved, and finally was sent home. I had also advised that all the dead bone be removed eight weeks from the beginning of the tibial involvement. This advice, however, was not followed, and it was not until fifteen weeks after the initial symptoms in the leg, that the case came to me through the courtesy of Drs. Sutherland and Fargher, of La Porte. The patient was then in the Holy Family Hospital. There was profound septicemia, high temperature, constant very rapid pulse, emaciation, several discharging openings and great cellulitis of the leg extending to the thigh, and, in general, a very bad condition.

Operation.—Operation (November 29) was at once undertaken with the object of draining the pus cavities throughout the cellular tissue and shaft, with the intention of completing operation at a future date after suppuration had been controlled and the general condition improved. But, having once begun the operation, there did not seem to be any favorable place to

* Read before the Laporte (Ind.) County Medical Society, June 9, 1911.

stop as intended. An incision was made along the front of the tibia. The whole of the upper three-quarters of the shaft was found involved in the necrosis and removed. The upper extremity of the shaft was involved, the necrosis extending to the articular surface of the knee-joint, leaving on either side what appeared to be a sound shell or shelf of compact bone corresponding to the tibial tuberosities. New islands of bone, from ⅛ to ¼ inch thick, had formed here and there on the periosteum. These were removed. The cellulitis was drained with rubber tubing, passed through in various directions. Pus bathed the whole leg. The cavity left after the removal of the necrotic shaft, lined by its periosteum, was cleansed and closed with catgut and the skin closed with silkworm gut to the upper end where an opening was left through which the cavity in the upper extremity of the bone was packed with iodoform gauze.

Subsequent History.—As expected, suppuration of the periosteal cavity promptly supervened, but on account of the excellent drainage her temperature ranged lower, and her pain and general condition improved continuously. At first, dressing could only be done under general anesthesia, but with the improvement this was soon avoided.

There was little change, except a gradual improvement in all the conditions until May 7, 1910, when the cast was removed on account of an eczema of the leg and foot. A week later it was reapplied but thereafter it was a constant fight to keep the eczema within limits which would permit the retention of the cast.

Bismuth paste was at this date in May being injected into the sinuses leading into the upper extremity of the bone and also near the center and at the lower end of the operation wound. These had gradually improved, the upper one having closed entirely. The eczema was much better. The bone in the tibia had reformed enough to be solid, except at the upper end, where there was free mobility.

The cast applied in May was worn until July 2, when, the sinuses having all closed, a solid cast was applied and allowed to remain without change for three months. When removed, there was found to be mobility at the lower end of the newly formed shaft, while that at the upper end had disappeared and the bone was solid at its upper extremity.

A skiagram (Fig. 1) was taken Oct. 2, 1910, when the cast was removed. It showed the new shaft to be well developed toward the upper end, but dwindling toward the lower end, where it ran down irregularly to a blunt point, separated one-half inch from the rounded upper end of the lower residual portion of the tibia. Her general condition was excellent. She had been growing rapidly, and going to school during the fall months.

Second Operation.—The cast was left off a month hoping that movement might stimulate some further development of bone, but without result. Nov. 4, 1910, another operation for the purpose of closing the interval between the new and old portions of the shaft was undertaken. The incision extended from the summit of the inner malleolus diagonally upward and outward to the anterolateral aspect of the leg. The whole anterior and external surfaces of the lower tibial remnant were exposed, and also the lower end of the new-formed shaft. The two extremities were found to be separated by fibrous tissue in which was imbedded a small, irregularly shaped piece of bone. Union would not have occurred. The fibrous tissue was removed and the ends of both bones freshened by excision of their extremities, after which it was found that a gap of about one inch required filling.

With mallet and chisel a flap including periosteum and the full thickness of the bone was cut from the anterior surface of the distal portion of the tibia, leaving an attachment of periosteum at its upper end. This flap was turned about and its periosteum stitched to the periosteum along the outer border of the proximal portion, bridging the gap. The endosteum and periosteum had been carefully handled and preserved. The wound left in the bone by the removal of the flap was packed with iodoform gauze, and also the interval between the two bones which had not been filled by the flap. A dressing over all and a cast were applied, the latter being provided with a window for dressing the wound.

There was some swelling following the operation, the wound stretched apart throughout its entire length, and bone was exposed over a small area. When the wound first became red and swollen it was dressed with moist boric dressing and later with dry dressings and Peruvian balsam. It appeared to heal rather rapidly. The cavity corresponding to the interval between the two bones unfilled by the flap was kept carefully packed in order to keep the tissues from crowding in between the two ends of the bone. Gradually this interval filled with granulation tissue, but left a small discharging sinus. Bismuth paste was systematically and continuously injected into this sinus during the next several months. March 11, 1911, a small sinus was noted. A probe passed in came on dead bone which seemed to be movable, so a small sharp

Fig. 1.—Skiagraph made Oct. 2, 1910. It shows the new shaft after ten months' development, associated with constant suppuration. Also the gap between the new and old portions of the bone.

Fig. 2.—Skiagraph made June 1, 1911, seven months after the flap operation. It shows not only that the gap has been filled with new bone, but that the entire new shaft has been spurred to vigorous growth.

pointed artery forceps was inserted and the irregular jagged fragment of bone was withdrawn. There was good use of the ankle-joint. The knee-joint was also unrestricted in movement. The bone on this date seemed firmly knit together and as large over the former gap as the shaft above and below. There was no abnormal mobility. Somewhat more than three months therefore elapsed after bone-grafting before the union was complete, and at that time the gap had been completely filled.

The second skiagram (Fig. 2) was made about June 1. It shows the gap filled with bone. Also, it is interesting to observe that the new-formed shaft which was spindling and weak before the last operation had now become particularly strong toward its lower end, apparently stimulated to overgrowth by the coupling of the two portions by means of the bone-graft.

There is shortening to the extent of three-fourths of an inch. I am unable to say at present whether this is in part on account of injury to the epiphyseal line of growth or entirely because of the action of the muscles not wholly counteracted by the splint-like effect of the fibula. That considerable pressure was put on the fibula is shown by the fact that the upper extremity was forced loose from its joint on the external tuberosity and now occupies a higher position than normal, where it is still movable. There is a backward curvature to the reconstructed tibia, due, I think, to the same inability to control muscle action. There is still a small sinus leading down to necrosed bone, which I believe will be absorbed in time, without the necessity of further operation. Bismuth paste is being injected regularly and there is no suppuration.

The turning up of a bone-flap from the distal portion to fill the gap in the tibia was only the application of the well-known principles of the grafting of the soft tissues. I have no knowledge of a similar case.

I wish to acknowledge the excellent skiagraphs made for me by Dr. A. C. Simon.

NOTE.—At the time of correcting the proof (August 1) the patient is using the leg with no restrictions, and the remaining sinus has closed. The head of the fibula no longer shows abnormal mobility.

TRANSPLANTATION OF A PORTION OF THE TIBIA INTO THE SPINE FOR POTT'S DISEASE

A PRELIMINARY REPORT

FRED H. ALBEE, M.D.

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NEW YORK

The following is a final development, from a series of studies, on the application of osteoplasty in the treatment of Pott's disease of the spine.

I was induced to undertake this experimental work on the spine, on account of the excellent operative results obtained in tuberculosis of joints elsewhere in the body where bony union with its perfect support and immobilization has caused the tuberculous process to disappear so rapidly, although only a fractional part of the tuberculous tissues was removed. This has been especially exemplified in my ankylosing operation on the hip, when applied to tuberculous ostitis of that joint, and also in erasion of the knee under similar circumstances. The fact that it is only necessary to secure bony stiffening in tuberculous joints, by operation or otherwise, in order to get a rapid disappearance of the tuberculous process has been emphasized very strongly in the recent writings of Ely, both in his clinical and his pathologic studies. Previous to the herein reported cases, five patients were operated on and three or four spinous processes were split with a chisel or bone forceps for from 1 to 1⅓ inches from their tips, into equal halves, either through a plane approximately parallel with the long axis of the trunk or at right angle to it. The tip of the lower half of the superior vertebra was then brought into approximation with the tip of the superior half of the next lower vertebra after green-stick fractures of each and fastened with heavy kangaroo tendon. Chips of bone from the spinous processes were then placed in between so as to insure further bone union between these vertebræ. Mechanically this event (the union of spinous processes of neighboring vertebræ) acts in two ways: First, if we consider each vertebra a lever (as it properly is) with the fulcrum at the lateral processes, its short arm, the body of the vertebra and the long arm of the lever, the spinous process, then by causing a bony union of the posterior part of the lever, we shall prevent by leverage a crushing together or approximation of the bodies or the anterior arm of the lever.

Nature has done this, i. e., a fusing together of the posterior portions of the vertebræ involved, but unfortunately rarely, as pointed out by Brackett. This prevents absolutely any crushing of the bodies of the vertebræ and thus any further progress of the kyphosis or deformity. Secondly, and possibly not least, this formation of a bony bridge, connecting firmly the diseased vertebræ with the healthy ones on either side, acts directly as an internal splint on the vertebræ involved and furnishes more perfect support than any mechanical apparatus could possibly accomplish.

These assumptions are based, of course, on bony union of vertebra to vertebra as well as union of the green stick fractures of the vertebral halves.

This union has been satisfactory so far as can be ascertained, but on account of its uncertainty and the large amount of cartilage in the vertebræ of small children, with its slowness of union and early lack of support, it has seemed best to devise a procedure which would be possibly more reliable and also give support from the beginning. These requirements can be fulfilled in no other way except by a strong bone-graft.

The different sources from which to secure a strong bone-graft for an internal splint, which would give immediate support to the spine, were considered and the crest of the tibia was selected as by far the most desirable and accessible.

CASE 1.—*History.*—With this in view, R. C., a child aged 4, referred to me by Dr. E. H. Johnston, of Waterbury, Conn., was admitted to the Post-Graduate Hospital.

The past history was negative up to the time the trouble with the spine began. Several months before, the child had begun to have night "cries and sweats," and coincidently began to support herself with her hands on her knees. The mother thought that there had been a loss of weight and that the child was getting pale. There had been pain in the region of the stomach for the past two months. About three weeks before examination, the lump on the child's back was first noticed.

Examination.—This was negative except for a considerable kyphosis at the first and second lumbar vertebræ. The child stooped to pick up things from the floor with difficulty. The spine was rigid to passive and active motion in the region of the kyphosis.

Operation.—The patient was operated on June 9, 1911. Under ether, with the patient in the ventral position, an incision was made, directly over the tips of four spinous processes, with the kyphosis in the center. Each process was then split longitudinally for about one inch and a quarter into two portions with one-third of the process on the left and two-thirds on the right. The soft tissues between the processes were then merely separated by blunt dissection or by a scalpel, parallel

with the muscles. Green-stick fractures were then produced at the base of the one-third portions of each of the processes. A wedge-shaped cavity was thus produced, ready to receive the bone graft. A compress of hot saline was then placed over the wound. The left leg which had been prepared for operation was then flexed on the thigh, so that an incision over the crest of the tibia anteriorly could be made. A prism-shaped piece of the tibia from its anterior-internal aspect was then removed by means of a chisel, with the periosteum intact on two of its surfaces. The graft taken was about 4 inches by 1 inch, by ½ inch. It was quickly removed and immediately placed in the interval between the portions of the spinous processes. The dense fascia over the tips of the processes was then approximated by interrupted sutures of No. 3 chromic catgut, thus holding the bone-graft very firmly in place. The skin was closed by a continuous suture of No. 1 plain catgut. The leg wound was treated in a similar way. The time of operation was fifteen minutes. There was no shock.

Result.—The child made a fine recovery from the anesthetic. The wounds healed by primary union. The child was discharged from the hospital July 17, 1911. The convalescence has been extremely satisfactory thus far. Muscular spasm of the spinal muscle has diminished very materially. However, it is obvious that it is too early to draw any definite conclusion concerning the final results of any of the cases herein reported, and this is a record of progress only.

Case 2.—*History.*—The patient, J. M. C., male, was a carpenter, aged 28. His family history was negative to tuberculosis. His present trouble began eight months ago with pain in his back which started in the lumbar region and shot into the thighs. He had night sweats all last winter, but no cough. There was a little pain in his right side when the patient walked and later there was pain in the left side also. There was a mass in the right groin for six months previous to the examination.

Examination.—This was negative except for moderate kyphosis involving the eleventh and twelfth dorsal vertebræ and the right psoas abscess, the size of a fist, just below Poupart's ligament. The spine was very rigid to all motion, both passive and active, in the lower dorsal and lumbar regions. The patient bent the spine with pain and difficulty.

Operation.—June 27, 1911, the Post-Graduate Hospital. Precisely the same operation was done as described in the previous case. The bone-graft from the tibia was much larger, however. It measured about 6 inches by 1⅛ inch by ½ inch. Both wounds healed by primary union. This case was discharged from the hospital July 15, 1911. The patient has gone back to work, wearing a Taylor spinal brace.

Case 3.—*History.*—The patient, W. D., was a boy aged 4½ years. His past history was negative except for measles and typhoid fever one and two years ago. He began to rest his chin in his hand eight months before examination. There was pain in the neck, which grew progressively worse, and which was complained of at about the same time. A lump on his back was noticed about six months ago.

Examination.—This was negative except for the spinal condition. There was a large angular kyphosis including the last cervical and first two dorsal vertebræ. There was a marked muscular spasm from passive motion. The patient bent with difficulty to pick things from the floor.

Operation.—July 14, 1911. Post-Graduate Hospital. This operation differed from the preceding ones only in reference to the bone-graft. On account of the angularity of the kyphosis, the bone-graft had to be molded into the segment of a circle in order that the corners would not project beyond the tips of the spinous processes distal from the kyphosis. The graft was about 4 inches by 1 inch by ⅜ inch, and included four spinous processes. Both wounds healed by primary union.

This patient is still on a modified Bradford frame. The convalescence has been very satisfactory thus far.

We have at present two cases on reversely bent Bradford frames for the purpose of securing a recession of the kyphosis before operating, and feel confident of holding the correction by the bone-graft.

SUMMARY

1. The inefficiency of present methods in the treatment of dorsal Pott's disease was tersely expressed by Schapps in 1905 as follows: "It is universally admitted that the forms [of portative apparatus] in general use and described in the standard text-books on orthopedics do not, even in the most skilled hands, control the deformity."

2. A firm bony splint with bony union to the vertebra involved and the healthy vertebræ on each side is supplied by this method, which assures not only the prevention of further deformity in two mechanical ways as stated above (leverage and splint action) but should also cause the immediate disappearance of the tuberculous process.

3. This method is believed to be preferable to any, where breaking or cutting of the spinous processes destroys entirely, or for the time being, until union takes place, the desired leverage of the spinous processes and their muscles and ligaments. Union is also uncertain where motion from breathing is present.

4. If bony union should not occur the same mechanical effects would still be largely obtained from the union of the internal bone splint to the ligamentous structures.

5. Perfect immobilization of the few involved vertebræ in the respiratory area of the spine is secured, which is a mechanical impossibility by means of any external apparatus, on account of the constant movement of the ribs, and the vertebræ attached.

6. Fortunately, on account of the anatomy of the part it is not necessary to enter the focus of disease; therefore primary union of soft tissues with immediate bone union can be expected.

7. The normal leverage action of the spinal muscles and the supporting ligaments on spinous processes is not interfered with.

8. The operation is by no means a formidable one. The technic is very simple.

9. When possible it is well to secure a recession of a kyphosis by long recumbency on a reversely bent Bradford frame. This method offers great promise of holding the correction obtained.

10. A bone-graft is far superior to an internal metal splint, because, by following Wolff's law it will become thicker and stronger if necessary to hold the weight or strain brought to bear on it, whereas in the case of an internal metal splint, suture or screw applied to the bone, no dependence can be placed on them to hold weight or strain, because of the bone atrophy and absorption which takes place directly around the metal. This occurs even when no strain is present.

I have found silver wire and screws which were placed through bone only a few months before, in the soft tissues where they had fallen through or out of the bone without being influenced by strain. For this reason and the always present danger of sepsis about buried metal, it would seem that bone-grafting will prove preferable to the internal metal spinal splint of Lange.

125 West Fifty-Eighth Street.

The Structure of Protoplasm.—We are generally agreed at present that it is inaccurate to speak of any one structure as common to all protoplasm, but many cytologists, among whom Bütschli, working chiefly on protozoa, was the first, believe that the different types are referable to one common generalized type which Bütschli described as alveolar in structure. A simple example of such modification of the alveolar into denser plasm can be easily demonstrated in the protruding pseudopodium of *Amœba proteus.*—Calkins in *Science.*

RESPIRATION VALVES

C. C. GUTHRIE, M.D.
PITTSBURGH, PA.

Some years ago I published a description[1] of an arrangement of valves for use especially in administering volatile anesthetics to animals in laboratory experimentation. The apparatus was designed primarily to avoid unnecessary waste of volatile anesthetics. An experiment with the first model constructed, in which an 8-kilo dog was employed, showed a saving of almost exactly one-half in ether when the valves were used, as compared to the amount used with the animal directly connected with the anesthetic bottle in the ordinary manner. This saving is due to the action of the valves in preventing air being forced through the bottle during expiration, thus displacing and carrying away ether vapor. And since expired air is warmer than inspired air under usual laboratory conditions, the increased vaporization due to raising the temperature of the liquid anesthetic is avoided. Furthermore, contamination of the anesthetic by condensation of water vapor is avoided. The valves require no adjustment or attention, as there is nothing that can get out of order. They have been used by the regular medical students in physiology and pharmacology at my laboratory for five years, and in no instance have they required any attention. One size suffices for half-grown cats as well as for large dogs, without any adjustment.

The apparatus commends itself for other reasons. For example, the audible but not noisy clicking of the valves furnishes a very reliable aural index as to the condition of the animal, and permits the closer concentration otherwise of the senses usually employed in constant observation of the condition of the animal. Or, if it is desired to collect the expired air for any purpose, this may be readily accomplished by connecting a suitable reservoir as a spirometer to the expiration tube. Owing to the desirable features enumerated, the valves are employed in all my operative work, connection with the dog or cat being made by means of an air-proofed hood or laryngeal tube (Figure 3).

The improved valves are shown in Figure 1; also, an additional valve of plunger type, which automatically regulates the entrance and escape of air from the lungs

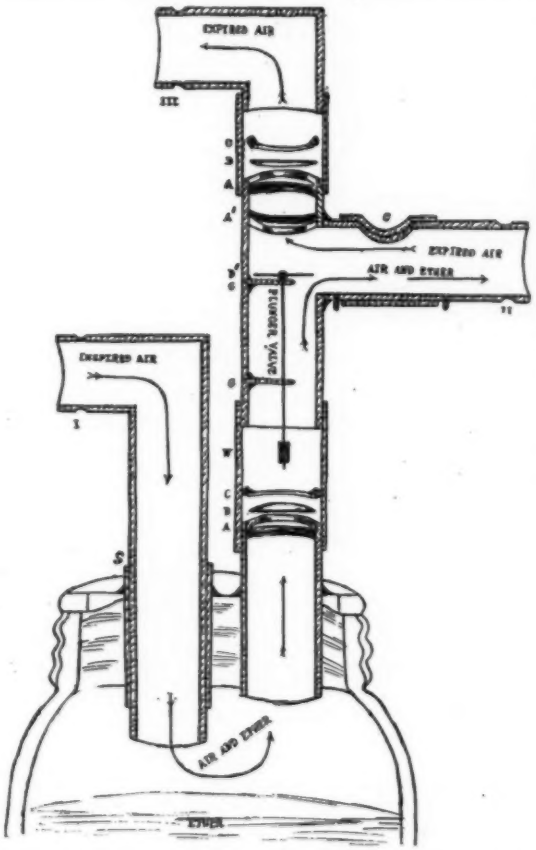

Fig. 1.—Respiration valves. I, entrance for air into anesthetic bottle. *S*, collar in which tube slides for adjusting the amount of ether. II, connection for laryngeal or tracheal tube. *G*, opening in tube and movable collar for adjusting the admixture of air. III, outlet for expired air. By connection with gasometer the amount of expired air can be measured; or by connection with spirometer the expired air can be measured and collected for analysis. A marker may be connected with the spirometer and arranged to record on a moving surface the amount of expired air. *A*, valve seat; *B*, valve disk; *C*, valve stop; *B'*, valve to close the opening at *A'* when artificial respiration is given by means of rhythmic or positive pressure through *I*; *W*, weight for regulating the action of valve in forced artificial respiration.

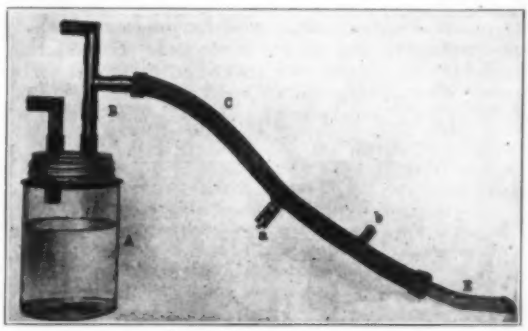

Fig. 2.—Anesthetic bottle, provided with respiration valves and connections.

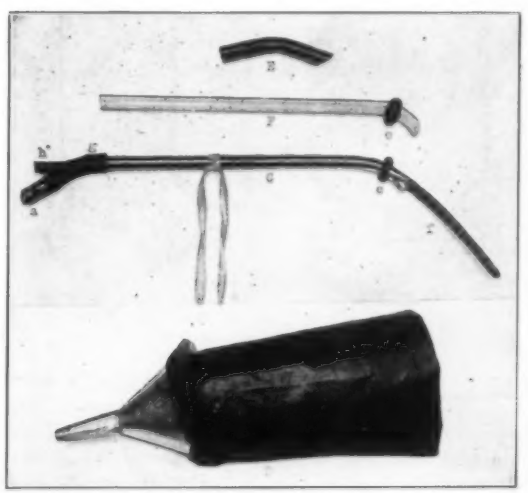

Fig. 3.—Attachments for administering anesthetics, for use with arrangements shown in Figure 2.

1. Guthrie, C. C.: Respiration Valves, THE JOURNAL A. M. A., April 6, 1907, p. 1183.

in intermittent pulmonary insufflation, is shown. In thus using the apparatus, a small vent is opened at *O*, to insure prompt opening of the plunger valve. The valves may also be employed in administering anesthetics in continuous pulmonary insufflation.

Figure 2 shows ether bottle, *A*, and valves, *B*, with rubber tube, *C*, for connecting with hood, *D* (Fig. 3); tracheal tube, *E*; laryngeal tube, *F* (Fig. 3); and laryngeal tube, *G* (Fig. 3), for continuous pulmonary insufflation. The nipple, *a*, on the tube, *C*, is for regulating artificial respiration, when the tube is disconnected from the bottle and air is forced into the lungs by connecting the supply directly with the free end of the tube. The nipple, *b*, is used for connecting a tambour to record intratracheal pressure changes. Both nipples, *a* and *b*, are provided with movable caps by rotation of which the openings, *c* and *d*, are controlled. Construction details of the nipples are shown in Figure 4. The method of attaching the air-tight sleeve to the metal funnel, which forms part of the hood, may be seen by

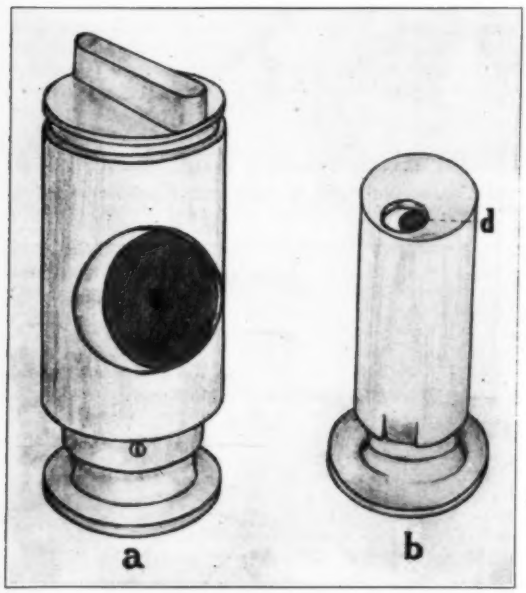

Fig. 4.—Enlarged drawing showing construction details of nipples inserted in tube shown in Figure 2.

reference to Figure 3. The free margin of the hood is held in contact with the skin by means of thin rubber tissue cut in the form of a strip, an inch or two wide and of sufficient length to encircle the base of the head two or more times. It is applied snugly, but not too tightly, over the margin of the hood, and is conveniently fastened by means of a serrefine clamp. The tracheal tube, *E*, which is of ordinary form, is made of polished or plated metal or glass and is introduced and tied in place in the ordinary way. The laryngeal tube, *F*, is of polished or plated metal or of glass. The curved end is somewhat sloped and flattened and is provided with a thick, soft rubber collar, *e*. A heavy ligature about a foot long is tied around the tube with a single knot a little to the outer side of the middle, in such a manner that the free ends of the ligature are of about equal lengths. Narrow cloth tape serves well for this purpose. To insert the tube, the animal is rapidly anesthetized until the muscles relax, which requires from about thirty to ninety seconds. It is then placed on a table with the head toward the light and the end of a short stick of soft wood is inserted in the corner of the mouth between the molar teeth on one side, the jaws being widely opened for the purpose. The tongue is then grasped with a towel held in the left hand and pulled forward. This brings the epiglottis into view, and with the right hand the curved end of the tube is passed over the epiglottis and into the larynx, until the rubber collar presses against the tissues. The ligature around the tube is then tied firmly about the lower jaw to hold the tube in place. After securing the ligature about the lower jaw and removing the stick from the mouth, the ends may be brought about both jaws and tied on the upper surface of the nose in front of the eyes.

The outer tube of the laryngeal tube, *G*, for continuous pulmonary insufflation, is of the same construction as the tube just described, and is inserted in the same manner. The inner tube, *f*, is flexible and of sufficient length to reach from the lips to the bifurcation of the trachea. It loosely fits the outer tube which it enters through a hole in the rubber sleeve, *g*, which it fits snugly. The outer end, *h*, may be provided with a glass or metal tube connector, for convenience in attaching to the compressed air supply. The free end of the rubber sleeve, *g*, is provided with a screw clip or other device such as nipple, *a*, Figure 4, for regulating the amount of outgoing air. The rubber sleeve which is disconnected from the end of the outer tube is removed along with the inner tube, before the outer tube is inserted. After the latter is tied in place, the inner tube is pushed through the lumen of the outer tube and secured in place by connecting the rubber sleeve with the end of the outer tube. The position of the end of the inner tube in the trachea is regulated by sliding it in the hole in the sleeve which it penetrates.

EXCISION OF PARIETAL PORTION OF TUNICA VAGINALIS FOR RELIEF OF PAINFUL TESTICLE FOLLOWING GONORRHEAL INFLAMMATION

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Patient.—A soldier, aged 25, stationed at Fort Porter, N. Y., previous history unimportant, had gonorrhea with swelling of left testicle six months previously. The swelling subsided and at time seen, the patient had only a slight mucoid discharge, noticeable in the morning, but complained of painful left testicle.

Examination.—Urine had shreds in the third glass. No stricture. Prostate on palpation was normal; right testicle normal; left testicle not swollen, but very painful and tender on palpation. Any effort to determine outlines of epididymis and first portion of vas caused so much pain that it could not be done.

Treatment and Course of Disease.—It was thought that the lumen of the globus minor was constricted, and the testicle was explored with the idea of excising this portion, and anastomosing the vas with the globus major. But when exposed the epididymis and vas were found normal. Attention was then directed to the testis. Here it was found that the cavity of tunica vaginalis was entirely obliterated; the parietal was entirely adherent to visceral layer by firm dense adhesions and was much thickened. This was dissected off and excised entirely. The testicle was returned to the scrotum and the wound closed with a small drain. Following operation, the tes

ticle was swollen for a short time. This soon went down and in ten days healing was complete. Patient was up at this time; symptoms had entirely disappeared. He returned to work two weeks after operation, doing general work around the stable. Hexamethylenamin (urotropin) was given for the urethral condition. The patient was seen six months after operation. The testicle was apparently normal on palpation—no tenderness—no atrophy. Patient rides daily without discomfort—has no symptoms, though this exercise caused much pain before operation.

A casual search through the literature reveals no report of a similar case. The operative treatment of acute epididymitis of course has been mentioned frequently, but none of the authors has discussed this phase of the subject. Painful testicle following gonorrheal orchitis does occur, the patients often becoming neurotic and frequently returning without sufficient signs to explain their symptoms. Adhesions of the peritoneum following inflammatory processes frequently cause pain. The tunica is peritoneum also, and well supplied with nerves. Following an infection of this character, adhesions with pain might be explained on the same basis. This explanation is offered merely as a suggestion.

This case was presented to the Section in Surgery at the Buffalo Academy of Medicine in January, 1911. I wish to acknowledge the courtesy of Captain R. Davis, of the Medical Corps of the Army.

127 Allen Street.

ENDEMIC MALTA (MEDITERRANEAN) FEVER IN TEXAS WITH THE ISOLATION OF THE MICROCOCCUS MELITENSIS FROM TWO PATIENTS

SECOND PAPER

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In 1905, Captain Charles F. Craig,[1] Medical Corps, U. S. Army, reported a case of Malta fever which had originated in the United States. The patient was a nurse in a hospital in Washington, D. C., where she contracted the disease, probably from nursing infected soldiers. In addition he reported nine cases in United States soldiers, who had become infected in the Philippine Islands. From the introduction to this communication by Captain Craig we quote the following remark:

I am convinced that a careful study by use of the Widal test and the agglutination reaction with *Micrococcus melitensis*, of many of the cases of obscure continued fevers which are prevalent in this country, will result in the demonstration that Malta fever is by no means a rare disease in the warmer portions of the United States, and that many of the so-called anomalous cases of typhoid fever are, in reality, instances of infection with the organism of Malta fever.

During June, 1911, while stationed at Camp U. S. Troops, Del Rio, Texas, one of us (Lieutenant Thomas L. Ferenbaugh, Medical Corps, U. S. Army), had the opportunity of observing five cases of continued fever occurring in the practice of Drs. R. M. Scott and S. L. Boren of Del Rio, and after making agglutination tests, reported these as cases of Malta fever.[2]

Following the report of these findings to the Surgeon-General of the Army and the confirmation of the agglutination test in the bacteriologic laboratories of the Army Medical School, we were ordered to Texas with a field laboratory to determine, if possible, the identity and extent of this fever. The field laboratory was first located at Langtry, Texas, owing to the fact that four of the patients had been infected near that place, and it was desired to investigate more fully and confirm the earlier work of Dr. Ferenbaugh on these cases.

Shortly after arrival at Langtry, two of the patients previously seen entered on a relapse. This report is based on a laboratory and clinical study of these cases during this relapse.

July 21, patient, C. E. (Case 1 already reported) entered on his third relapse, with a temperature of 104 F. and with the same symptoms as during the previous attack.

On the evening of July 21, a blood-culture was made; 0.5 c.c. of blood was inoculated into each of two sterile broth and litmus milk tubes, each containing 10 c.c. of medium. After incubation at 37 C. for three days the cultures were plated out on glucose-nutrose-litmus-agar and the plates incubated for three days at 37 C. At the end of forty-eight hours about twenty very small, discrete, transparent, circular colonies had appeared on each of two plates, which were later completely identified as the *Micrococcus melitensis*.

July 23 a second blood-culture was made, and the blood inoculated into flasks of sterile broth. After four days incubation the cultures were plated out on glucose-nutrose-litmus-agar with the following results:

Quantity of Blood, c.c.	Amount of Broth, c.c.	Results
2.	50.	Pure culture of *M. melitensis*
.3	10.	Sterile
.3	10.	*M. melitensis*
.3	10.	Sterile

One-tenth c.c. of blood was inoculated directly on to the surface of each of two glucose-nutrose-litmus-agar plates with a sterile L-shaped glass spreader and incubated three days at 37 C. Both of these plates were sterile.

BLOOD-EXAMINATION JULY 23

Red blood-cells	4,200,000
White blood-cells	6,500
Hemoglobin	75 per cent.

Differential count, per cent (500 cells):

Polymorphonuclear neutrophils	45
Small mononuclears	47.4
Large mononuclears	6.4
Transitionals	1.2
Eosinophils	0
Mastzellen	0
Nucleated reds	0
Parasites	0

The temperature returned to normal July 28. The patient at the time of this report had been working at the goat camp for the previous two weeks and had suffered no further relapse. On July 29 0.75 c.c. of a centrifugalized specimen of urine was plated out on each of two glucose-nutrose-litmus-agar plates. After four days incubation the plates proved negative for *M. melitensis*. Chemical and microscopic examinations of the urine were negative.

CASE 6.—M. E., Langtry, Texas, aged 26, goat herder, brother of the four patients previously seen in Del Rio by Dr. Ferenbaugh. The patient had been working at the goat camp for three months before the onset of the sickness, and had been drinking goat's milk at the camp. He became ill June 14, 1911, with headache and pain in the back of the neck; ached all over; no definite chill; profuse sweating, especially at night; complained a great deal of eyes smarting; appetite fairly good, bowels constipated. The patient did not go to bed during the first attack of fever, but stopped work. The fever ran a mild course and returned to normal June 24. Temperature remained normal until July 19, when fever again returned. When seen at the Army laboratory at Langtry,

1. Craig: Internat. Clin., 1905, 89.
2. Ferenbaugh, T. L.: Endemic Mediterranean Fever (Malta Fever) in Southwest Texas, THE JOURNAL A. M. A., Aug. 26, 1911, p. 730.

July 21, the patient had a temperature of 102.5 F., and complained of headache, loss of appetite, pains in joints, weakness, profuse sweating at night and insomnia.

July 23 a blood-culture was made, and 4 c.c. of blood inoculated into a flask containing 60 c.c. of sterile broth. After incubation for two days the culture was found to be contaminated with a rapidly growing acid-producing coccus, and although the culture was plated out repeatedly on glucose-nutrose-litmus-agar no colonies resembling the *M. melitensis* could be found.

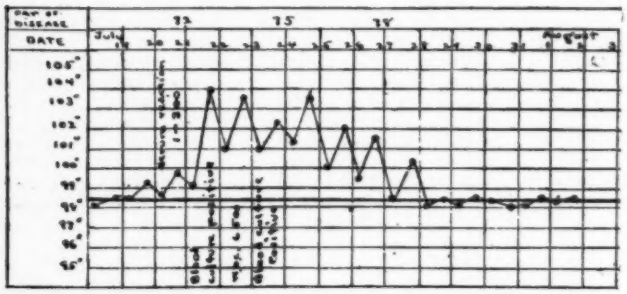

Fig. 1.—Chart showing temperature curve, blood-count and results of blood-culture in third relapse in Case 1 (C. E.).

July 29 a second blood-culture was made. The temperature at the time was 101.8 F. The blood was inoculated into flasks of sterile broth, which were incubated for four days and then plated out on glucose-nutrose-litmus-agar with the following results after three days incubation:

Quantity of Blood, c.c.	Amount of Broth, c.c.	Results
1.	100.	Pure culture *M. melitensis*
0.5	100.	Pure culture *M. melitensis*
0.5	100.	Contaminated

Four-tenths of a cubic centimeter of blood was inoculated on to the surface of a glucose-nutrose-litmus-agar plate with a sterile L-shaped glass spreader. After two days incubation about twenty colonies of *M. melitensis* appeared on the plate.

Blood-serum on July 28 gave the following agglutination tests:

M. melitensis 1-80 dilution, positive in one hour.
Normal control 1-50, negative in one hour.
Bacillus typhosus, 1-50, negative in one hour.

Transitionals	0.8
Eosinophils	0.4
Mastzellen	0.2
Nucleated reds	0
Parasites	0

Agglutination tests August 9 resulted as follows:
M. melitensis, 1-50 dilution, positive in 10 minutes.
1-100 dilution, positive in 30 minutes.
1-300 dilution, negative in 1 hour.
Normal control 1-50, negative in one hour.
Bacillus typhosus 1-50, negative in one hour.

The urine was repeatedly plated out on glucose-nutrose-litmus-agar, but was negative in each instance for *M. melitensis*. Chemical and microscopic examinations of urine were negative.

August 14, the patient was still very ill, the fever ranging from 100-102.5 F. daily. The patient complained of headache, profuse sweating, loss of appetite, pains in the joints and obstinate constipation. Physical examination showed enlarged liver and spleen with some tenderness over both. Abdomen slightly distended and some rigidity of the abdominal muscles was present; otherwise physical examination was negative.

Agglutination tests in the above cases were made both microscopically and macroscopically. Both methods gave identical results.

METHODS USED IN THE ISOLATION AND IDENTIFICATION OF THE MICROCOCCUS MELITENSIS

The organism was isolated by means of blood-cultures, which were made in two ways:

1. The ordinary method of drawing blood with a syringe from a vein in the elbow.

2. By the sterile capillary tube method of Zammit,[3] the blood being taken from the ear.

Both methods give good results. The Zammit method is especially useful in Malta (Mediterranean) fever, since the organism is present in small quantities of blood during the fever stage. Zammit isolated it from as small a quantity as 0.005 c.c. It is also valuable in field laboratory work where patients often refuse to permit the taking of blood from a vein.

Media.—Sterile broth in flasks, reaction + 1, was used as a preliminary enriching medium. The medium used for the isolation of the organism was a glucose-nutrose-litmus-agar[4] containing 1 per cent. each of glucose and nutrose and standardized to a reaction of + 1. The experimental work of Major Horrocks,[5] R.A.M.C., of

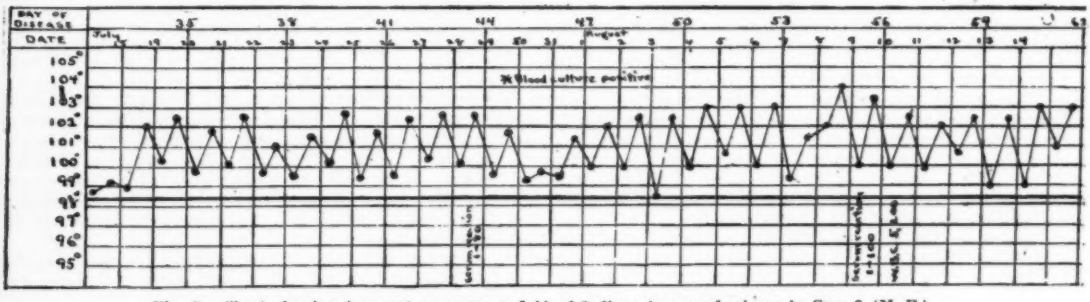

Fig. 2.—Chart showing temperature curve and blood-findings in second relapse in Case 6 (M. E.).

BLOOD-EXAMINATION, AUGUST 9

Red blood-cells	4,390,000
White blood-cells	5,200
Hemoglobin	75 per cent.

Differential count, per cent (500 cells):

Polymorphonuclear neutrophils	46.
Small mononuclears	47.
Large mononuclears	5.6

3. Zammit: Reports of British Commission on Mediterranean Fever, Part 1, Article 6.
4. Kolle and Hetsch: Die Experimentelle Bakteriologie und die Infektions-Krankheiten, Edition 2, Kulturmethoden.
5. Horrocks: Reports of British Commission on Mediterranean Fever, Part 1, Article 1.

the British Mediterranean Fever Commission, has shown that the addition of 1 per cent. nutrose to agar or broth greatly accelerates the growth of *M. melitensis* and also since the organism does not ferment glucose, the addition of this sugar tinted with litmus is of great service in isolating the organism from a mixed culture.

In obtaining the blood, strict aseptic precautions were observed in every case to avoid contamination. From 2 to 4 c.c. of blood were taken and inoculated into the broth-enriching medium in the proportion of one part of blood to not less than thirty parts of broth. The broth cultures were then incubated at 37 C. for four days.

In plating out these cultures, the liquefied glucose-nutrose-litmus-agar was poured into sterile Petri dishes and allowed to cool until the surface was well hardened. Several drops of the broth culture were then deposited near the center of the plate with a sterile pipette and then distributed over the surface of the medium with a sterile L-shaped glass spreader. Plates were then incubated for three days at 37 C.

After forty-eight hours' incubation there appeared, on the positive plates, a considerable number of small, round, transparent, colonies with a yellowish tinge and slightly granular center and presenting a typical "dew-drop" appearance by transmitted light. The colonies produced no fermentation of the medium and remained blue even after two weeks' growth.

The colonies were fished and the organism found to possess the following characteristics:

Morphology.—A small coccus, non-motile, emulsifies readily in hanging drop and exhibits the characteristic Brownian activity. It does not stain by Gram.

Cultures.—Growth on agar slants appears after three days incubation as small transparent colonies along the line of inoculation. In litmus milk after four days the milk becomes markedly alkaline without change in consistency of the medium. No fermentation in glucose.

Agglutination Tests.—Agglutinates readily with a specific immune serum at dilution of 1-1,000 in one hour.

Agglutinates readily with patient's serum at dilution of 1-200, in thirty minutes.

According to Major Horrocks,[6] "a microorganism which agglutinates with a specific animal serum in a high dilution, does not ferment glucose, renders milk alkaline without coagulation, may be justly regarded as the *M. melitensis.*"

The organism which we have isolated from these two cases of continued fever conforms to the foregoing criteria in every respect.

CONCLUSION

Endemic Malta fever exists in Texas at the present time.

We desire to thank Brigadier General George H. Torney, Surgeon General of the Army, for extending to us the opportunity for studying the identity and distribution of this disease. We also desire to thank Major F. F. Russell, Medical Corps, U. S. Army, and Captain Charles F. Craig, Medical Corps, U. S. Army, for much valuable advice and assistance.

Belladonna in Epilepsy.—The use of belladonna in epilepsy dates from the seventeenth century. It was recommended by Mardorf, in 1891, and later was a favorite remedy of Trousseau. Since the advent of bromid its use has become less general. It is of most avail in cases of *petit mal* and those complicated with nocturnal incontinence. The best results are obtained where it is given in conjunction with the bromids. The best preparation is the tincture in doses of from 5 to 10 minims.—E. L. Hunt in *Medical Record.*

6. Horrocks: Reports of British Commission on Mediterranean Fever, Part 1, Article 3

THE CONTROL OF TYPHOID FEVER*

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Typhoid fever is an acute, infectious and contagious disease occurring in man, and is caused by *Bacillus typhosus.* The typhoid bacillus depends for its perpetuation on multiplication in the body of man. The organism leaves the human body in the discharges from the bladder and bowel. All methods of control of typhoid fever must rest on the proper disposal of this material. If human excreta are prevented from reaching human mouths, typhoid fever will be entirely prevented.

In the United States, typhoid fever causes approximately 35,000 deaths, and incapacitates about 450,000 persons each year at their period of maximum earning capacity, thus causing an estimated economic loss of $150,000,000. The disease prevails practically throughout the United States. The application of the measures necessary for the control of typhoid is of paramount importance, not only on account of the large number of cases and deaths and the enormous economic loss resulting therefrom, but also because of the fact that these same measures will control a number of other diseases such as hookworm disease and diarrheas and dysenteries, and will render impossible the spread of Asiatic cholera.

THE TYPHOID ORGANISM

The typhoid organism is a motile bacillus, growing well on practically all laboratory media. Its resistance to heat, light and chemical agents is relatively low. Its normal abode is the human body, but under certain circumstances its life outside the body, as in water, sewage, soil polluted with human excreta, butter, or in shellfish may be prolonged for weeks or even months. Usually, however, its life outside the body is short. It resists drying as in dust or on clothing for considerable periods of time. The multiplication of the organism outside the human body takes place only under exceptional circumstances, and is not an important factor in the spread of the disease, except in connection with milk.

SOURCE OF THE INFECTION

The sources of the infectious material are the discharges from the human body. These may be from recognizable cases of the disease, from persons in the incubative or ambulant stages of the disease, from convalescents, or from the so-called chronic typhoid carriers. While the discharges from the bladder and bowel constitute the major portion of the infectious material, other secretions such as the tears, sweat, saliva or bronchial secretion of the patients may contain the organism. It also occurs occasionally in the pus from post-typhoid cold abscesses, and in the mammary secretion.

METHODS OF SPREAD

The usual portal of entry of the typhoid bacillus is the mouth. It reaches the mouth in food and drink, from infected fingers, possibly by infected dust, or by any other material infected with the specific organism.

* Report of the Committee on Typhoid Fever to the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-Second Annual Meeting, held at Los Angeles, June, 1911.

EPIDEMIC TYPHOID

While anything soiled with human excreta may act as a vehicle for transporting the infection from its source to the victim, water, milk or other foodstuffs are usually the vehicles in sudden epidemics or outbreaks of the disease.

Small streams or bodies of water usually not polluted may receive a relatively large amount of infectious material at one time, from a case or cases on the watershed, and may give rise to an extensive explosive outbreak. Streams or bodies of water usually more or less polluted with sewage may, by reason of changes in the conditions affecting the viability of the typhoid bacillus, or in the amount of infection they receive, become so heavily infected as to give rise to a sudden outbreak.

Wells and springs used by large groups of persons may become infected from seepage or from direct introduction of the infectious material, and thus give rise to an epidemic, more or less localized in character. Water in aqueducts, conduits or water mains may become infected through leakage.

Milk is a common vehicle for typhoid infection. The organism multiplies readily in milk. The milk may be infected by hands or flies soiled with human excrement, by being mixed with infected water, by the use of utensils which have been washed in infected water, or by being placed in infected bottles or other vessels.

Fresh vegetables, infected with human excrement used as a fertilizer, shellfish grown or "floated" in polluted water, or any food touched with hands soiled with human excrement, or placed in containers soiled with human excrement may give rise to epidemic typhoid.

ENDEMIC TYPHOID

In certain communities typhoid fever is continuously present. In such instances the infectious material may be *exogenous* or originating outside the community and be brought into it by a heavily polluted water-supply, milk or other foods more or less constantly infected. Even when the infection is not introduced from without in this way, a community may suffer from a continuously high typhoid rate due to *endogenous* infection or infection originating within the community itself. This type of typhoid has been called residual or prosodemic typhoid. Many factors contribute to the spread of endogenous typhoid fever. All depend on failure to exercise proper care in the disposal of human excrement within the limits of the community affected. These factors are: contact; surface wells and springs in the area affected; failure to diagnose, report and properly supervise cases of typhoid; improper handling of milk and foodstuffs; and the exposure of human excreta so that it may be scattered by flies or by other means.

The spread of typhoid fever depends on the same general factors in both rural and urban communities. In rural districts, the factors of water, milk and other foods are not so potent, as products of this kind from one source do not usually reach large groups of persons. Factors depending on flies, contact and similar means, on the contrary, are even more potent in the spread of typhoid in rural districts by reason of the almost universal use of the open surface privy.

INVESTIGATION OF TYPHOID FEVER

The investigation of the causation of typhoid fever necessitates a careful study into all the factors concerned in its spread. The investigator should be able to diagnose the disease, be acquainted with the methods of investigation, and have sufficient experience to interpret his findings.

Preliminary to investigation, all known cases, including abortive and mild cases of the disease, should be located. The diagnosis of a sufficient number of cases to determine the character of the disease should be made at the outset. Death certificates and reported cases should be tabulated and all cases reported by physicians as enteric fever, slow fever, fever, abdominal fever, typho-malaria, winter cholera, bloody flux, diarrhea, continued fever, malaria, nervous fever, or any febrile or intestinal complaint should be regarded as suspicious of typhoid until another diagnosis has been established.

In addition to the cases reported from physicians, other persons should be questioned as to suspicious cases occurring in their neighborhood and cases reported in this way should be promptly investigated. Records of hospitals in the community should also be examined.

As soon as the diagnosis is established and the cases collected, they should be investigated one by one. As far as possible each house in which a case has occurred should be visited and all information bearing on the case collected there. In order to secure accuracy, completeness and uniformity, it is desirable that some form of blank be used for the collection of this data. The blank should cover the following facts regarding the case: name, residence, color, sex, age, date the person took to bed, date of first symptoms, civil condition, school attended, church and Sunday school attended, occupation, how long at present residence, absences from home during month preceding illness, source of water used for drinking at home, at place of business, and water other than that of public supply drunk away from home during preceding month, source of milk used at home, other milk drunk, restaurants where patient has eaten during the month preceding, ice-cream eaten and its source, fresh vegetables and shellfish and their source, source of ice used at home, name of physician, exposure to other cases, cases in house previous to this, cases in neighborhood, cases at school or at place of business, etc., names of servants employed and residences of each, visitors at residence during month, general sanitary condition of premises, condition of well or spring, if any, condition of privy, if any, and screening against flies, condition as to isolation of cases and disinfection of discharges, screening of patient against flies, presence or absence of trained nurse.

Before any conclusion is drawn as to common sources of infection, all information collected about cases should be tabulated in convenient form so that all factors concerned may be seen together. A convenient method is to place the names or numbers of the cases in a vertical column at the left side of the sheet, other vertical columns being ruled for the various factors involved. The information regarding any one case is thus in a horizontal line, while the information regarding any one factor such as milk, contact, etc., is in the vertical column. A separate sheet should be ruled for the milk-dealers, their names being in the vertical column to the left; other vertical columns should be ruled, one for each day of the epidemic. Cases can then be spotted against the milkman on the day of their occurrence. All tabulations should be made in reference to the day on which the patient takes to bed. The cases should be plotted by days, giving the chronologic curve of the outbreak. If a map of the community is available or if one can be made, the cases should be spotted on it according to the point of origin. Spots or tacks of

different colors may be used on this map to indicate different facts regarding the cases.

A study of the charts and maps so prepared may direct the investigators' attention to some factor or factors, as being most probably responsible for the spread of the disease. Certain factors can usually be eliminated as a result of this preliminary study. Attention should then be focused on those factors which, apparently, might be responsible. All clues and leads should be followed up until all information bearing on them has been collected. The investigator should retain an open mind throughout the study and should always remember that other minor factors may contribute to the spread of the disease within limits, even though the great bulk of the cases may be caused by some great general factor.

WATER OUTBREAKS

In order to direct intelligently the field investigation which must be taken up after the cases have been inspected, the investigator should recognize the general features of epidemics due to different causes. If the preliminary study shows all or practically all the patients to have used habitually any common supply of water, investigation of the conditions surrounding the water-supply should be made at once. In a sudden outbreak, especially during the winter months, in a community previously practically free from the disease, unless there is strong evidence that milk is responsible, water should be assumed to be the cause of the outbreak until proved otherwise. In all instances in which the users of any common water-supply seem to suffer more severely than others, suspicion should be attached to the water.

A sanitary survey of the water-supply should be instituted at once in all such instances. On small watersheds, the entire area should be gone over as thoroughly as possible to find any existing points of obvious pollution, and to locate actual cases of the disease which may have furnished the infectious material. Where larger streams are used, all sewage outfalls should be located, the intake for the water-supply examined, and all information possible regarding pollution further up stream collected. Currents, ice, freshets and other factors of flow should be determined. In communities using water from ponds and lakes, points of pollution along the shore should be determined, sewer outfalls located, and currents and prevailing winds should be taken into consideration. Where wells or springs are used they should be carefully inspected and nearby points of pollution, sewer lines in the neighborhood or local pollution about the mouth of the well or spring should be determined. All geologic facts bearing on the supply of such springs and lakes should be collected and considered. Pumping stations, filter-plants, storage reservoirs and all parts of the distributing system should be examined as completely as possible. Breakdowns, overflows, shortage, supplementary supplies, and emergency systems for fire protection should be determined and recorded.

While sanitary inspections usually give the most important information about the pollution of a water-supply, valuable additional information may be obtained in many instances from the results of careful chemical and bacteriologic work. Whenever possible, samples should be collected and examined at every stage in the passage of the water from its source to the consumer. Vended water-supplies in use in the community should be inspected and examined in the same way as public supplies, if there is any suspicion of their being responsible for the outbreak.

MILK OUTBREAKS

Indications pointing to typhoid infection from milk usually appear early in the investigation. The fulminant character of the outbreak in which the maximum number of cases per day appears almost immediately, the distribution in certain sections of the community, and the high incidence of the infection among users of milk usually give the investigator a clue. The first step in the investigation of evidence should be the tabulation of all milk-dealers supplying the community, with the approximate number of gallons per day distributed by each. Those dealers showing a disproportionately large number of cases should be investigated first. Every step in the course of the milk from the cow to the consumer should be scrutinized. In instances in which the dealer handles milk from only a few farms, this is relatively a simple matter, involving a trip to the dairy and dairy farms, the inspection of all employees, collection of information as to the health of all employees and to their association with the sick, particularly those recently employed, discharged or leaving on account of illness, also an inspection of water-supplies used for cooling or cleaning of utensils or cans. The methods of transportation, possibility of infection during transportation, the city milk depot, its employees, methods, equipment and water-supplies, and lastly the driver of the individual wagon and the methods of vending must be taken into account. Bottling and the possibility of infection from bottles coming from houses in which the disease exists should be considered. In investigations of the possibility of infection of milk by handling, bacillus-carriers should be constantly kept in mind.

OTHER FOODS

The determination of the influence of foods other than milk in the transmission of typhoid is usually a matter of great difficulty. Other factors should be eliminated as completely as possible before attention is focused on this point. In instances in which fulminant outbreaks of typhoid fever occur among those who have partaken of certain articles of diet in common, each item of the menu should be traced to its source, and all persons concerned in the vending, preparation and serving of the various articles of food subjected to careful examination as to their sanitary history. In addition it should be determined exactly what articles on the menu were eaten by each person affected. In this way the infected article may be incriminated. Chemical or bacteriologic examination of food remaining from the meal, or of like articles of food from the same source as those suspected, may furnish additional evidence. The present methods of isolating typhoid bacilli from foodstuffs are difficult and uncertain. Furthermore, infection of foodstuffs is often transitory, occurring at intervals, and the life of the typhoid bacillus in most foods is so short that it may not survive for the time elapsing between the infection and investigation. For these reasons failure to recover the organisms should not negative strong epidemiologic evidence.

SPREAD FROM ENDOGENOUS INFECTION

When the introduction of exogenous infection through water, milk, or other foods is eliminated from the problem, other factors must be considered. The determination in any community of the means of spread of typhoid fever arising from sources within the community itself is, as a rule, a matter of great difficulty. Many factors varying in degree of their operation are involved. In addition to direct personal contact with

the case of typhoid, indirect contacts, varying in degree and often devious and obscure in their course, undoubtedly contribute to the spread of the infection. Any foodstuff or any material handled by human beings so as to become soiled to the slightest extent with human excreta may act as a link in the chain of indirect contact. Hands so soiled may serve to infect bread, fruit, milk or other foods which may in turn carry the infection to an indiviual or a number of persons. Flies which have had access to infectious material may act as distributing agents. Surface wells and springs locally polluted may give rise to few or many cases of the disease among the persons using them.

Due to the multiplicity and complexity of the factors concerned in the spread of typhoid fever from endogenous infection, a study of cases resulting from such infection seldom presents the characteristic and striking features presented by a study of cases from exogenous infection. A careful study of all cases in the community under consideration is always necessary. In some instances this study must be prolonged over a considerable period before reasonably definite conclusions can be reached. In addition to study of individual cases, and such studies of the water, milk and other food-supplies as are necessary to eliminate them as vehicles for the transportation of infection, the general features of the disease in the community should be given careful consideration. The facts regarding the prevalence of the disease for as long a period of years as accurate statistics are available, should be carefully compiled, charted and studied. The number of cases and deaths for each month of the years for which records are available, should be charted, and the average morbidity and mortality rates for each month should also be charted.

A chart showing the relation between the average monthly death-rate and the average monthly mean temperature for the same period of years should be prepared. In communities in which typhoid fever is due largely to endogenous infection, the typhoid curve follows closely the temperature curve, taking into account the time elapsing between the infection and the death of the patient. For communities using a heavily polluted water, peaks in the typhoid curve during the winter and spring months are frequently higher than the crest of the summer curve.

A strikingly seasonal (summer) prevalence of typhoid fever in a community should not be taken, however, as a positive indication that the disease is due entirely, or even for the greater part, to endogenous infection; because coincident with the warm summer weather there may be an increase in the number of cases in the surrounding country, with a consequent increase in the amount of exogenous infection introduced through foodstuffs which have become infected at their farm sources.

The geographic distribution of the cases in the community is sometimes of significance. There may be a well-marked tendency toward concentration of cases in and around insanitary areas. It should be borne in mind, however, that even when the disease is due almost entirely to endogenous infection it may be generally distributed over a large community.

The chronologic distribution is frequently suggestive. Scattered cases appear at intervals, gradually increasing in number and reaching a maximum usually toward the end of the hot season, then declining slowly to the winter normal. This is usually in striking contrast to the sudden explosive character of an exogenous outbreak.

If the sanitary survey of the community reveals the existence of a large number of open privies or of other insanitary practices giving rise to wide-spread excretal contamination, it may be assumed that typhoid fever is spread as a result, and the finding of such conditions constitutes important corroborative evidence of endogenous infection.

A conclusion that typhoid fever in any community is due largely to either endogenous or exogenous infection should be drawn only after an exhaustive study of all the facts available. In practically every community in which typhoid fever prevails both types of infection are operative, their relative proportions varying from time to time. Measures for the restriction of typhoid fever in any community must therefore comprehend all factors concerned in the distribution of both endogenous and exogenous infection.

THE PREVENTION OF TYPHOID FEVER

While means for the prevention of typhoid fever vary according to local and other conditions, certain fundamental procedures are necessary in every case.

An adequate supply of water of good sanitary quality for domestic use is, of course, absolutely necessary. The work of furnishing such a supply is usually left to engineers, but sanitary considerations in connection with any supply should be paramount. Under emergency conditions, a water-supply, even if known to be polluted, may be rendered safe for use by disinfection with hypochlorite of lime. Supplies obtained under conditions indicating pollution and used without filtration should be furnished with auxiliary plants for the addition of hypochlorite of lime to the water. Where public supplies are not available, as in small towns and rural districts, all wells and springs should be supervised to secure such construction and care as will prevent pollution.

An adequate sewerage system, reaching every part of the community, should be constructed whenever possible, and every closet should be connected with it. Soil pollution should be prohibited under penalty. Where water carriage of sewage is impossible, all privies should be built and kept strictly in accordance with sanitary principles; to retain the excrement in a water-tight receptacle, screened against flies, until it is removed under official supervision. When possible, the material from the privies should be cremated. When this is impossible, it should be mixed with a disinfectant solution and buried as far from human habitations and important watercourses as possible. It should never be used for fertilizer on any garden or truck farm.

Milk production should be under constant and rigid supervision. All dairies and milk depots should be frequently inspected, the greatest possible degree of cleanliness should be insisted on, and all cases of sickness on a dairy farm should be promptly reported to the health authority and immediately investigated. When indications point to infection of any milk-supply, the consumer, rather than the producer, should always be given the benefit of the doubt. No large milk-supply can be regarded as safe, in view of the likelihood of frequent accidental infection, unless subjected to efficient pasteurization under official supervision.

Accurate supervision of all cases is of the greatest importance. This should include visitation of every case as soon as reported, with collection of epidemiologic data, instruction of the family as to necessary precautions, particularly in regard to disinfection, free supply of disinfectants to the poor, provision for screening of all cases against flies, and revisitation as often as necessary to secure proper care of each case. The visiting nurse is of great value in this work.

Provision should be made for prompt diagnosis of all suspicious cases by laboratory methods. The blood-culture is recommended for this purpose.

Fly prevention by removal of filth and garbage and legal control of stables, requiring screening of manure pits and weekly removal of manure should be practiced.

Garden truck and fruits should be protected as far as possible by screening against flies, and cleanliness in all shops and other places where human food is stored or handled should be required. The use of human manure for fertilizer on truck gardens should be absolutely prohibited. Restaurants, soda fountains and ice-cream factories and depots should be frequently inspected and cleanliness required.

Popular education regarding the nature, cause and means of spread of typhoid fever, particularly with reference to spread by contact with the case and by fecal contamination, should be carried on until every citizen is acquainted with the facts about the disease.

In rural districts the construction and maintenance of a sanitary privy on every farm, the total abolition of the surface privy, the proper construction and care of wells and springs, and the education of the people as to the contagiousness and necessary means for preventing the spread of the disease are the essential measures. Education is the first essential.

Vaccination against typhoid fever by inoculations with killed cultures of typhoid bacilli seems to confer a marked immunity to the disease. While the duration of this immunity has not yet been definitely determined, the results of experiments with the agglutination of the blood of inoculated persons would indicate that the immunity has a duration of less than one year. It should be borne in mind, however, that the duration of the immunity may not coincide with the persistence of the agglutinating reaction in the blood. This has still to be determined. The reaction from the inoculation is in most cases slight, and the value of the protection has been thoroughly demonstrated by its use in military forces. These facts would seem to warrant a more general use of the method in those particularly exposed to the infection, especially physicians and nurses. Its value in the face of an epidemic has still to be determined.

In conclusion, the prevention of typhoid fever in the United States to-day depends on an improvement in the present methods of disposing of human excreta. Until all the people can be taught that the most dangerous material with which they come in contact in their daily lives is filth from human bodies, and until their sanitary habits are so changed that human filth is prevented from reaching human mouths, the prevention of typhoid fever cannot be consummated.

The necessary brevity of this report has prevented a fuller discussion of many questions into which the committee would otherwise have gone at length.

The report is a condensation of facts and views from many sources and your committee has not deemed it wise to attempt to give individual credit for them.

The views expressed in the report regarding typhoid fever from infection originating within the affected community are based largely on work done in the cities of Washington, D. C., and Richmond, Va. The committee feels that it should acknowledge its obligation to Dr. E. C. Levy, Chief Health Officer of Richmond, Va., for much of the work on which these views are based and for much assistance in clearly defining the distinction between the two types of infection in any community — that originating without and that originating within the community itself.

HOW TO COLLECT OLD MEDICAL BOOKS IN EUROPE

WHERE TO GO AND WHAT TO LOOK FOR *

FIELDING H. GARRISON, M.D.
AND
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There are physicians who not infrequently apply to themselves what, it may happen, is one of their own favorite prescriptions — a summer vacation in Europe. To such, a few hints as to ways and means of locating rare medical books while abroad may not come amiss, while it may perhaps interest the returning traveler to survey a few actual or hypothetical experiences.

We will assume that our traveler, if not interested in the whole history of medicine, or at least a specialist, is at any rate sportsmanlike enough to care something about the classics in his favorite branch of medicine. To one of this stamp Europe is indeed the Happy Hunting Grounds — the most favorable haunt for the medical book-lover. On the Continent there is always an even chance of picking up some little treasure-trove of European medicine or even one of the earlier medical Americana for a song. But, as with hunting and fishing, there are more ways than one, so success oftenest comes to him who shuns "the madding crowd's ignoble strife." Where there is more competition among buyers than among sellers, prices are sure to be high and let no one fancy that the larger antiquarian bookstores in cosmopolitan centers will let anything go for less than it is worth. In an interesting talk before the Medical Library Association in the spring of 1909, Sir William Osler emphasized the point that, on account of the growing interest of medical book-fanciers in rare first editions and quaint folios, such things are becoming practically inaccessible by reason of the prohibitive prices put on them by antiquarian booksellers. Reasonable figures, it seems, can only be had at some occasional auction sale or in out-of-the-way places in Italy. To illustrate this, he cited an experience of a copy of the "Inventum Novum" picked up for a lira, when a western colleague who was also an admirer of Auenbrugger had just paid $100 (about 500 times as much) for the same classic in Germany. This is, of course, an exceptional piece of luck, yet it illustrates the value of frequenting the haunts of the *Kleinstädter* — the little stalls about Paris, the English cathedral and seaport towns, some quaint old city of the Low Countries, the little places nestled in the Swiss or Tyrolese Alps, the charming old towns of the Fatherland, famous in civilization and learning, and, above all those Italian cities of lesser rank, which Renan thought still "aglow with infinite glory"— Florence, Siena, Perugia, Padua, Milan, Turin. Let neither Venice nor the devious by-ways of the Eternal City be forgotten, nor Vienna and the Slavic and Scandinavian university towns. It is in the modest obscure book-stalls of places like these that one can buy to greater advantage, sometimes making remarkable finds at prices four or five times less than the experienced antiquarian would sell them for.

As the true traveler is not he who rushes from pillar to post, annihilating space and time in his mad effort to see everything at once, but rather he who is inclined

* From the Library of the Surgeon General's Office.

* For reasons of space, a "miniature Baedeker for medical bibliophiles," prepared to accompany this article, is here omitted, but is given in full in the authors' reprints, which will be sent on request by the authors or by THE JOURNAL, on receipt of a stamped and self-addressed envelope

to "loaf and invite his soul," to saunter, to *flâner* and to absorb the atmosphere of some beloved place, so there is a gentle art of book-buying as well as of book-selling, the rudimentary features of which are known to every true bibliophile. We can only deal in glittering generalities, but those of the true cult inevitably get the browsing habit. As in bazaars in the far East, shopping is always a sort of social diversion, so the book-lover *pur sang* will never ask for a coveted volume point-blank, for, if the dealer happens to be one who has a sliding scale of prices, he is sure to profit by so naïve an interest, especially if his prospective customer is perceived to be a foreigner. As Balzac says: "Too much confidence diminishes respect, while others take advantage of excessive enthusiasm." If time permits, it is better to spar for points. Look as innocent as possible, and when the zealous bookseller comes smilingly forward, simply say that you want to look around a little. Left to your own resources walk from shelf to shelf, addressing to the bookseller now and then some question which will bring you nearer your goal. Perhaps, like the unfortunate antiquarian in Henry James' remarkable study "The Bench of Desolation," your dealer may have a fine feeling for literature itself. In this case you can safely chat with him about the desired volume, and it would be a very poor bookseller indeed who failed to produce it under these conditions along with some others. He will, in fact, show you these books in the spirit of the hidalgo in "Hernani"—*J'en passe et des meilleurs.* You examine them at leisure and finally say, in passing, that while it is not exactly of great interest to you, you might buy this volume if it does not come too high, or else simply price the books indifferently one by one. The dealer, happy that he is, after all, about to make a sale to the stranger, names a moderate price, and the purchaser walks away in the happiest frame of mind. On the other hand, a bookseller who nags his prospective customers with his importunities, however polite or well-meant, is not likely to attract them. It is an unwritten law of human nature that those who make social or other advances too rapidly usually turn out to be suspicious acquaintances and a fair standard of self-respect, for men and women alike, is summed up in the famous inscription over the gateway of Krupp's gun-foundry at Essen: "Those applying for permission to see these works may expose themselves to a refusal." As a rule, however, such defensive tactics are seldom necessary with the gentle antiquarian who is too frequently of a retiring, if not of a negative, disposition.

In the matter of prices in general, whether printed in a catalogue or given by word of mouth, we should say that, provided one can afford it, the price asked for any good book is seldom too much. It is always well to remember, too, that what seems a large sum of money, as given in francs, marks, lire, crowns or roubles is, after all, not so much in United States money or as compared with American prices for the same book. The genial Autocrat once described himself as springing like a tiger on some coveted volume and the real ardor of the chase lies not so much in driving a bargain as in getting what one wants by the hunting instinct.

In seeking for rare medical books it is quite necessary to have the collector's *flair* for the quarry — to know what to look for. Yet, even when this condition is fulfilled, a possible purchase must still depend on two determinants: the extent of the purchaser's inclination and the length of his purse. Readers of Goethe's autobiography will remember how he advises the connoisseur in painting to buy the best pictures of his own period rather than old masters because, for the same or even less money he can in this way build up a collection which will become choice and rare enough in his own life-time. This is even more true of the medical classics for, as we have said, prices for the older books are even now so prohibitive that they can only be collected by book-clubs and libraries or else by the few physicians who may be accounted "wealthy" in the financial sense. At a time when American enthusiasts will pay as much for the Baltimore edition of Edgar Poe's maiden efforts in verse as they would for the first folio of Shakespeare ($2,900 in two instances), it is hardly likely that the greater classics of medicine — the Greeks, Vesalius, Paré, Harvey, Sydenham — will go a begging, unless there should be some unimaginable world-slump in prices. The old Greek and Roman classics are, in most cases, fine specimens of the work of the great Renaissance printers, and many of these are therefore the *ultima Thule* of the collector. As Osler has said, "An Aldine here and there, a few fine parchment-bound Juntas, an Oporinus or a Froben in the original boards and stamped pigskin, a fine Paris Stephanus, an Elzevir or a Plantin, give tone to the shelves, just as do the Stuarts and Copleys to the dining-room in an old mansion."[1] The antiquarian dealers know this and charge accordingly. Some of these specimens of fine printing, however — the Elzevirs in particular — have greatly decreased in value of late years and are consequently more easily obtainable by those who fancy them, while the books of the English printers of the sixteenth century — Wyer, Pynson, Copeland — have increased in value from fifty to a hundred fold on account of their present scarcity, originally due to the destruction of so many of them during the Civil Wars of England and in the Great Fire of London in 1666. For example, the different imprints of Linacre's translations of Galen and many of the English anatomical classics of the post-Vesalian period are exceptionally hard to come at, and, in each case, like the bronze in Browning's poem, "esteemed a rarity." Should any collector be lucky enough to bag any piece of early printing, English or other, he may remember that it is quite immaterial if the book has no intrinsic value in itself. Any specimen of early printing or of a famous printer has a bibliographic value which determines its price irrespective of its intrinsic value. For this reason, we repeat, the books most likely to be within the average collector's reach are those of the eighteenth and nineteenth centuries and, of these, stray "bargains" at stalls will usually be in pamphlet form (within a hundred pages in size). By sheer luck a collector might happen on a Rösslin, a Cornaro, a Fracastorius, a Paracelsus, with its flamboyant title-page in red and black type, an Athanasius Kircher or even a Wepfer on apoplexy offered at a reasonable figure somewhere on account of its small size or shape, and classics of these dimensions increase in number as we approach the modern period. The small-sized book, like the short story, the lightning express, the telephone, wireless, the motor-car, the airship, predigested foods, tabloid preparations, heart-to-heart talks and saltatory evolution per social uplift is one of those frequently unattainable ideals of modern life which illustrate Maupertuis' principle in mechanics: that we aim to get at anything or to get out of any difficulty by the shortest possible cut. It is in the eighteenth century that we begin to find the little classics or *Kleinmeister* — things like Fothergill

1. Bull. Med. and Chir. Fac., Maryland, Baltimore, 1909, I, 254.

on diphtheritic sore-throat (1747), Caspar Friedrich Wolff's "Theoria generationis" (1759), Auenbrugger's "Inventum novum" (1761), Sigault on symphysiotomy (1777), Pott on spinal caries (1779), Mesmer on animal magnetism (1779), Withering on the foxglove (1785), and Jenner's different pamphlets on vaccination. In the nineteenth century the number of these pamphlet classics begins to increase apace, following the modern tendency toward specialization, and the specialist will naturally keep his eye open for the famous monographs on his particular subject. We may expect the anatomist to look not only for the numerous post-Vesalian pamphlets of the seventeenth century but also for the essays of Cooper, Wrisberg, Meckel, Lieberkühn, Zinn, *hoc genus omne*, for the beautiful title-page of Lorenzo Bellini on the structure of the kidneys (Florence, 1662), and for Goethe on the intermaxillary bone (Jena, 1786); the adept in finer anatomy for Schwann (1839) and Schleiden (1842), Gerlach (1858), Max Schultze on protoplasm (1867), Walther Flemming on cell division (1882), Golgi (1885), Ehrlich on intravital staining (1886), and Ramon y Cajal's "Nuevo concepto" (1892). The physiologist might begin with the English classics on respiration and keep in mind a long list of attractive desiderata of small size, including Galvani on animal electricity (1792), Sir Charles Bell's "New Idea" (1811), Marshall Hall on reflex action (1833), Beaumont on the gastric juice (1833), Purkinje on ciliary motion (1835), Helmholtz on the conservation of energy (1847), the epoch-making monographs of Claude Bernard, Pflüger on electrotonus (1859), Marey on the sphygmograph (1860), Fritsch and Hitzig on cerebral localization (1870), Hering on facultative organic memory (1870), or Bayliss and Starling on the chemical regulation of the secretions (1904). The clinician may reflect that there is probably only one copy of Parkinson on the shaking palsy (1817) in the United States, and perhaps only two to be found in any English library;[2] he will know why Heine on infantile paralysis (1840) or Currie (1797) and Brand (1863) on hydrotherapy in typhoid are so much worth having nowadays and why the second edition of Laënnec would be quite as valuable a possession as the first. The surgeon will naturally value the original pamphlets on anesthesia, or Lord Lister's original paper on antiseptic methods (1867), or Esmarch on hemostatic bandaging (1873); the obstetrician and gynecologist will probably hold in especial esteem Paré on podalic version (1555), Deventer on pelvic deformities (1701) Holmes (1842) and Semmelweis (1861) on puerperal fever, Simpson on chloroform (1847), Marion Sims on vesicovaginal fistula (1853), Noeggerath on latent gonorrhea (1872), Parry on extra-uterine pregnancy (1876), Sänger on Cesarean section (1882), Credé on infantile conjunctivitis (1884), or Tait on pelvic hematocele (1888). The ophthalmologist will have a long list of "real values," ranging from Bartisch's "Augendienst" (1583), Kepler's "Paralipomena" (1604), Scheiner's "Oculus" (1619), Descartes' "Dioptrics" (Elzevir of 1644) to Brisseau (1706) and Maître-Jan (1707) on cataract, Dalton on color-blindness (1794), Young on astigmatism (1801), Helmholtz on the ophthalmoscope (1851), Snellen on test-types (1862) or the Sydenham imprint of Donders on accommodation and refraction (1864). The throat specialist will not forget the three pamphlets of Manuel Garcia (1855), Türck (1858), and Czermak (1858) on laryngoscopy, Bouchut and Trousseau on laryngeal intubation (1858) and the earlier reprints of O'Dwyer. The expert in medical jurisprudence will, of course, have a lively interest in the Caroline Criminal Constitutions (1533) and the little treatises of Codronchi (1597), Fedeli (1602) and Zacchias (1621).

There are some medical books of exceptional rarity such as the early tracts on syphilis, Bagellardo on pediatrics (1472), Grassi on eye diseases (1475), the Florentine *editio princeps* of Celsus (1478), the booklet on personal hygiene which Moses Maimonides wrote for the use of Saladin (Florence, 1478), Mattioli's commentary on Dioscorides (1544), the first edition of Sydenham's "Schedula Monitoria" (1666) and Sanctorius' commentary on Avicenna (1625) concerning which Dr. Weir Mitchell relates that it took Quaritch seven years to find him a copy.[3] Chances of finding these are variable. As Dr. Billings has remarked,[4] a collector of to-day is as likely to pick up Gordon's "Lily," Gaddesden's "Rose" or any of the incunabula listed by Hain as the early American tracts of Thacher, Boylston and Waterhouse on small-pox. Many of the best-known classics of more recent times, such as Daviel on cataract extraction (1753), the original Latin of Wolff's great monograph on the development of the intestines (1764-6), Lavoisier's discovery of oxygen (1775), Parry on exophthalmic goiter (1786), McDowell on ovariotomy (1816), Wöhler's synthesis of urea (1828) or Gregor Mendel on plant hybridity (1865) are buried in the pages of rare periodicals.

A special class of books which will grace any public or private collection is that which includes the best specimens of anatomic illustration, from the imposing woodcuts of Vesalius and Stephanus and the splendid copper-plates of Casserius, Bidloo, Ruysch, Mascagni and Albinus, down to the spirited steel engravings which Anderloni made from Scarpa's pen-drawings, or the self-illustrated "Dissections" of Sir Charles Bell. In this class one might include the actual anatomic works of great artists—the folios of Leonardo da Vinci's drawings in red chalk (1898), Albrecht Dürer on human symmetry (Nuremberg, 1532), Rubens' "Théorie de la figure humaine" (1773), John Flaxman's "Anatomical Studies," (1833), and perhaps even a specimen or two of those curious short-hand notations of human anatomy from the pencil of Rodin. One rare and valuable example of pathologic illustration, the "Selecta Praxis Medico-Chirurgica" of Alexander Auvert (Paris, 1856), has a unique interest. It consists of a series of masterly delineations of disease, executed partly by means of colored line engraving, partly in stipple retouched in watercolor, and is much esteemed, not only for its accuracy of detail, but particularly as a wonderful example of illustration in colors. The only copy of the first edition in the United States is to be seen in The Library of the Medical and Chirurgical Faculty of Maryland.

A word about Spanish medical books, in which most medical libraries are known to be sadly deficient. Spain may seem as virgin soil to the collector, yet the medical books printed in Spain and Portugal before 1500, and even up to 1550, are of such extreme rarity and their value so well-known even to the obscurest Spanish bookseller, that there is little chance of finding them, while the modern medical literature of Spain, always excepting the writings of Gimbernat and Ramon y Cajal, has nothing of more than ordinary interest. Of especial

2. See Catalogue of the Manchester Medical Society, 1890, p. 872. Also: Supplement to catalogue of the library of the Royal College of Physicians of Edinburgh, 1863-70, 1870, p. 186.

3. Tr. Cong. Am. Phys. and Surg., 1891, New Haven, 1892, ii, 166.

4. Tr. Internat. M. Cong., Lond., 1881, i, 60.

value are the surgical treatises of Julian Gutierrez (1494), Juan de Aviñon (1545) and Francisco Arceo (1574), Valverde's "Anatomy" with its characteristic copperplates (1559) and Joseph d' Acosta's "Historia natural y moral de las Indias" (1590), which contains the first account of mountain sickness. A find which might dignify any surgeon's collection would be a possible copy of the rare Spanish translation of Lanfranc's "Cirurgia," published at Seville in 1495. As a specimen of splendid typography it is comparable with a black-letter Chaucer.

Collecting old books in midsummer might be likened to the almost outworn boyhood diversion of looking for primitive stone implements over tilled fields in the springtime. As the farmer's ploughshare used to turn up a new crop of Indian arrow-points and stone axes regularly each succeeding year, so the owner of valuable books, is for various reasons, often disposed or obliged to get rid of some of them as summer approaches. A good rule is, always to look for a book highly valued in a given country in some other country. For example, Schoepf's "Materia medica Americana" (Erlangen, 1786), of which we know of only three copies in America, might very well turn up somewhere in Germany at a moderate price.

It is hoped that these random notes may emphasize a few bibliographic values which the specialist, from his deeper knowledge, will not regard as impertinent.

THE USE OF SALICYLATES IN RHEUMATISM *

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We frequently hear dissatisfaction expressed concerning the treatment of rheumatism with salicylates. This dissatisfaction seems to arise from several causes, either because every ache or pain or morbid process which occurs in the muscles or joints will not react promptly to salicylates, or because the patient cannot tolerate the enormous doses administered, or that even in spite of large doses up to tolerance, certain lesions such as the cardiac lesions of true rheumatism, are not controlled or prevented with facility equal to that by which the pain and swelling of the joints are controlled.

Let us consider for a moment the various treatments that were used before salicylates, in 1875 and 1876, were first used for rheumatism. After having tried the enormous bleedings for depletion, and terrific purgation by mercury, and the various antiphlogistic ideas for which veratrum viride, aconite and antimony were given in large doses, and having frankly realized that these did harm rather than good, the profession settled down to either doing nothing at all and treating symptoms as they arose, or giving the so-called alkaline treatment with potassium bicarbonate, which certainly did not harm the patient as many of the other forms of treatment had done, but which, on the contrary, seemed to show a distinctly beneficial effect, for in fact under this treatment there was and still is less cardiac involvement than under any other single or uncombined treatment.

Today, outside of some form of salicylate treatment, the alkaline treatment remains the most effective. The men who first tried the salicylate treatment had seen many methods tried and pronounced a failure, and after thorough trial they were forced to the conclusion that the salicylate treatment shortened the period of pain and fever in rheumatism. Maclagan said that the duration of the pain and suffering was the same number of days as formerly it had been weeks.

One great difficulty from which the profession is slowly emerging is the lack of differentiation made between true rheumatism, which will respond to some form of salicylates, and the various other forms of arthritis which occur, as gout, tuberculosis, the infected arthritis accompanying gonorrhea and scarlet fever, rheumatoid arthritis, and the infected arthritis of unknown origin, such as Still's disease, affecting the smaller joints; these are all classed together as rheumatism and often treated alike. "He who diagnosticates well, will cure well," was never more strikingly illustrated than in the benefits of a correct diagnosis in the various forms of arthritis, and the proper treatment for each varying morbid process. Salicylates will not disinfect the pus of a scarlatinal joint. They will not immobilize and clean out a tuberculous joint. They will not act as a tonic or as an alterative and build up a depleted body and help it overcome the disintegrating processes of arthritis deformans. They may quiet the pain, but they will not subdue the inflammation in the spindle-shaped joints of the fingers in the acute arthritis of unknown origin. They may stop the pain in gout and, with rest in bed and free purgation, the gouty attack pass by, but we cannot expect their full, rapid and beneficial action except in the case of genuine rheumatism.

By rheumatism is meant here that inflammatory process of the larger joints which in childhood is so frequently accompanied with cardiac involvement, and in adult life shows some form of cardiac involvement in over 50 per cent. of those affected. Monarticular rheumatism is exceedingly rare, and in true rheumatism the small joints of the fingers and toes are involved with equal rarity. In this article the symptom-complex of the inflammation in the large joints with or without cardiac involvement is alone referred to as rheumatism.

If we confine ourselves to this conception of rheumatism, I am sure that we shall find some form of salicylates which will act beneficially; but simply because salicylates will act beneficially we are no more justified in treating patients suffering from rheumatism in an absolutely routine way than we are in any other disease. The human intestine is not a test-tube, although often treated like one, and a human organism has its distinct tolerances and intolerances for the different forms of salicylates as distinctly as it has for other remedies.

Most patients are easily irritated by salicylic acid and their stomachs soon reject it, yet these same patients will readily take sodium salicylate with no disturbance. Some patients cannot take sodium salicylate, and yet they tolerate oil of wintergreen in large doses and rapidly respond to it. In other patients I have seen salol and salicin act well, when other forms of salicylates would not, and certainly in children and in the aged, salicin is recognized as the form which is the least depressing and from which the most benefit seems to be obtained.

Aspirin has lately come into vogue and is highly praised by some authors, and yet in my own hands the result from it in rheumatism has been very disappointing. Synthetic methyl salicylate is to be avoided for internal use, and should only be used externally, and yet oleum betulæ (the oil of sweet birch) contains the methyl salicylate in the natural form, and is one of the most active and broadly tolerated with the least toxic symp-

* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

toms of all the salicylates, and it seems a generally accepted fact that the natural salicylates are less irritant than the synthetic.

Synthetic salicylic acid is usually formed from phenol, and the orthosalicylic acid is the one used medicinally. The meta-acid is therapeutically inert, and the para-acid is sometimes present to the detriment of the results obtained, for it is distinctly more toxic than the ortho acid. At times all the phenol is not converted into salicylic acid, and one often wonders when reading of the cases of toxic action of collapse with failing respiration, whether it is not a case of badly prepared synthetic compound in which some phenol or para-salicylic acid is causing the damage to the patient. Some salicylic acid may undergo decomposition, total or partial, with liberation of phenol or compound of phenol, and in fact, some samples of salicylic acid smell of phenol. Sodium salicylate is the form in which the salicylates are usually administered, and it is well borne by most people. If given in solution with excessive alkali it is infinitely less irritant to the gastric membrane than when given in powder.

Salol, which is phenyl salicylate, also has a disadvantage of breaking up into salicylic acid and phenol in the intestine, and hence should not be given if the patient is suffering from kidney leisons. This often acts well, and usually in the amount given is non-toxic, but it cannot be pushed to as high doses nor does it seem to be so rapidly absorbed as sodium salicylate. It is less disturbing to the stomach, and some individuals whose gastric mucous membranes are unusually sensitive to sodium salicylate can tolerate salol. Salophen, which is the acetyl paramido phenol salicylate, had quite a vogue at one time, but seems to have fallen into disuse. Like salol, it has the phenol element in it, and like salol I have seen it rapidly reduce pain and fever in rheumatism when other forms of salicylate could not be tolerated.

Croftan recommends aspirin as the least irritating to the stomach, intestines and kidneys; he believes that this is the best form of salicylate, and declares that it possesses hardly any toxic symptoms. I have seen a few patients in whom aspirin seemed to be most irritant to the gastric mucous membranes, and produced the general toxic symptoms of the salicylates very rapidly in small doses. In my own experience it has not been as satisfactory for the reduction of fever and an improvement in the general condition of the patient as either sodium salicylate or oleum betulæ; in severe cases of rheumatism I have failed to get satisfactory results with it. This probably is due to the presence of the acetyl group, which causes this substance to be slowly broken down and thus probably slowly absorbed. There seems to be no question that to obtain rapidly beneficial results we must have a form of salicylate which is acceptable to most gastric mucous membranes, is quickly absorbed, and hence produces its effect quickly, and then is quickly excreted, that there may be no accumulation in the body.

Some years ago Kinnicutt recommended the oil of wintergreen, which is a natural methyl salicylate. This natural oil of gaultheria is no longer on the market, but the oleum betulæ or oil of sweet birch is, and it contains the same natural methyl salicylate. This form of salicylate in many ways fulfils the desired objects of which I have just spoken—the rapid absorption, the rapid excretion, and, to most people, a non-irritating effect on the gastric mucous membranes. In those patients with whom it disagrees, I have found it even when disturbing the stomach to cause less often the headache, the ringing in the ears, and the dizziness. It has been my experience that the majority of patients will respond more quickly and with less disturbance when the oil of birch is given them, than they will to synthetic sodium salicylate or the other forms of salicylates mentioned. Besides the advantages just mentioned, it has the further advantage of being a natural salicylate.

Dr. August Seibert of New York has recently recommended the hypodermic method of giving salicylates. The results reported are excellent, and this method may prove of advantage in those patients whose gastric membranes cannot retain the salicylates. The following procedure is recommended: In acute rheumatic infection of joints, heart, pericardium, pleura and central nervous system (chorea), 10 c.c. of a 20 per cent. sterilized solution of fresh sodium salicylate to 100 pounds of body weight are injected fifteen minutes after an appropriate cocain solution (gr. ⅛ to 30 drops of water) has been injected under the same spot. If the injections are made earlier than this, the solution will cause pain. This is repeated every twelve hours. In severe cases, with many localizations of the rheumatic process, the dose may be increased to 15 c.c. of the solution to 100 pounds of body weight.

It is considered essential to the success of this treatment that the above doses be used. Smaller doses will be without effect. The effect may be noticed within three hours after the first injection. Joint stiffness, pain, fever and pulse-rate diminish, and the general feeling of the patient improves. If the injections are continued regularly every twelve hours, the improvement also continues. If they are omitted for twenty-four hours in severe cases, the symptoms will grow worse, but in milder cases the improvement may continue. None of the injected patients presented symptoms of heart depression, ear buzzing, or profuse sweats. In the so-called chronic cases, 10 c.c. to 100 pounds of body weight of the following oily solutions are injected every twenty-four hours: acidi salicylici, 10 gm.; olei sesami, 80 gm.; alcohol, pure, 5 gm.; and gum camphor, 5 gm. The effect of the camphor on the heart is especially beneficial in pericarditis and endocarditis.[1]

Some months ago, a member of a well-known firm in New York suggested to me a form of salicylate which seemed to possess the various advantages of which I have just spoken, and to reduce to a minimum the irritating and toxic symptoms from its use. This salicylate is prepared as follows: oleum betulæ, the true oil of sweet birch, is taken and saponified either by superheated steam or caustic alkali, the resulting methyl alcohol driven off by heat, and the resulting salicylate decomposed by sulphuric acid and washed until free from sulphates; the salicylic acid is then purified by recrystallization. This salicylic acid is taken and mixed with a sufficient sodium bicarbonate in excess, and with a sugar binder is made into tablets, so that on solution each tablet will give five grains of sodium salicylate. This is freely soluble in water, with a pleasant acid taste, and with a free elimination of CO_2 gas. This seems to form a sodium salicylate in a nascent condition, for with the dry sodium bicarbonate and dry acid when the solution is made, they combine and fulfil the idea of nascent condition.

These tablets I have been using in a four-months' hospital service in Bellevue Hospital with very satisfactory results in severe cases of rheumatism. There has

1. Seibert: Med. Rec., New York, March 11, 1911.

been a very noticeable lack of gastric irritation even when 20 grains were given every two hours, and when the ringing in the ears was produced and the dose diminished, this ringing quickly subsided. In some patients the fever fell rapidly before the pain ceased and the pain remained for a day or two after the fever struck normal, although very much ameliorated and so insufficient as not to cause much complaint from the patient. In most patients the pain and the fever disappeared coincidentally, while in others the pain rapidly improved in a few hours, and the fever disappeared a few hours later. In two patients with a marked galloping rhythm in the heart, and with increase in the cardiac murmurs, the belief was justified that there was a beginning myocardial inflammatory process. This cardiac condition subsided rapidly in three days, and the temperature went to normal and did not afterwards rise above, even to 99 or 100. Usually, as is well known, when the heart has become involved there is a rise to 99 or 100 for some time after the other symptoms have disappeared. In another patient with pericarditis, acute endocarditis and myocarditis and with a double rheumatic pleurisy, this form of sodium salicylate was the only form which had any beneficial influence. His pericarditis and pleurisy improved rapidly under these tablets. My supply gave out and again there was a recrudescence in the pleurisy and pericarditis. When I obtained more tablets, these processes rapidly improved under their administration. This improvement was so rapid and marked that it forced on me the impression that it was more than a coincidence.

This form of salicylates seems to enable one to get a large amount of an active salicylate into the circulation at once, in the least toxic and most effective form of the natural salicylate. The process by which this form of salicylate is made is not an economical one, and it is unfortunately doubtful if it could ever be generally commercialized. It is here reported as an exceedingly active and useful form of salicylate, with a maximum of rapidity of absorption, effectiveness after absorption, and a minimum of toxic action.

In using salicylates in rheumatism, one is impressed by the rapidity with which they act when they act well and when the form of salicylate agrees with the patient, so much so that it is my belief that if within forty-eight hours a distinctly beneficial action is not obtained with the form of salicylate which is being used for that patient, we should use some other form. If sodium salicylate with large doses of sodium bicarbonate do not make a distinctly beneficial impression on the rheumatic process by the second day, it should be changed to the oleum betulæ, that is, the true oil of birch, and if the patient is resistant to that, it should be changed to salophen or some other form of salicylate.

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HERPES ZOSTER IN CONNECTION WITH KIDNEY LESIONS

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Since Head's fundamental investigations on certain hyperalgetic cutaneous zones and their relation to affections of deep-seated visceral organs, it is generally accepted that pains located in these organs are transmitted to well-defined areas of the integument. The transmission of these pains is supposed to occur through fibers of the sympathetic nerve originating in the same cord-segments.

While these hyperesthetic zones, up to a short time ago, for want of better knowledge, were considered neurasthenic or hysterical stigmata, Head was the first to establish their anatomic importance as reflex phenomena. He proved conclusively that the location and extension of these hyperesthetic areas as dependent on pains of visceral organs coincided in many instances with the cutaneous eruptive zones of herpes zoster. In other words, by irritation of corresponding segmental fibers of the sympathetic nerve, paresthesias of pain are caused in certain zones of the periphery, which may be followed by the appearance of a typical herpes zoster.

The hyperalgetic peripheral zone of the kidney, according to Head, corresponds to that area of the integument which is innervated by the tenth and eleventh dorsal and the upper lumbar spinal nerves.[1]

During the last few months Bittorf, Kanera and Rosenberg,[2] each in brief succession, reported a case of herpes zoster of the tenth and eleventh dorsal nerves in connection with attacks of kidney colic caused by intermittent hydronephrosis, floating kidney and nephrolithiasis, respectively.

Since the literature does not contain other records of like or similar observations, the two following cases, which occurred in my urologic service of the German Hospital, are reported.

CASE 1.—*History.*—An attorney, aged 38 years, had suffered from frequent micturition and intermittent attacks of left-sided kidney colic several years prior to the appearance of a large fluctuating hydronephrotic sac on the same side, which about ten years ago was punctured and evacuated through a small lumbar incision. At the same time a small soft calculus, probably the cause of the ureteral obstruction and consecutive hydronephrosis, was removed from the pelvic portion of the left ureter. Gradually the same symptoms, pyuria pollakiuria and intermittent attacks of colic in the left lumbar region, set in again and became intensified. The patient's condition, of late, grew perceptibly worse, the main symptoms being strangury, frequent attacks of dyspepsia, headache and general malaise.

Examination.—General examination negative; kidneys not palpable; Wassermann negative. Urine cloudy, containing albumin and, microscopically, abundant pus. At two cystoscopic sittings the bladder presents the picture of a chronic cystitis; trigone congested; left ureteral orifice somewhat patulous; both ureters catheterized to pelvis; urine from right kidney is clear and normal, while that of the left side is cloudy and presents, chemically and microscopically, the same findings as the bladder urine. A marked deterioration of renal function (indigo carmin phloridzin, etc.) is found on the left side, while that of the right kidney appears normal. Blood cryoscopy shows 0.573. Radiographic plates negative for calculi-shadows. Renal secretion of left side shows pure culture of *B. coli.* On the basis of these findings, an advanced left-sided pyonephrosis is diagnosed and the patient prepared for nephrectomy on that side.

Two days before the date set for the operation, the patient complained of a slight chill and tenderness over his left thigh radiating toward the knee. On examination a herpetiform eruption was noted on the anterior surface of the left thigh in its center extending about 5 cm. in length and 2.5 cm. in width. Solitary blisters, also in center of anterior surface of thigh, were visible one 4 and one 5 cm. above and one about 10 cm. below the main focus. Temperature slightly elevated, reaching 100 F. but once.

Operation.—Under expectant treatment the zoster readily dried up, so that the contemplated operation could be per-

1. Sahli: Lehrbuch d. klin. Untersuchungsmeth, 1905.
2. Deutsch. med. Wchnschr., 1911, Nos. 7, 14 and 17.

formed nine days after the date first set. By lumbar incision a fluctuating sac of the size of a child's head was exposed; its enucleation was performed with great difficulty on account of many fibrous adhesions, which were particularly dense at the site of the old incision. The ureter was stitched to the lower angle of the wound which was closed by layers. The kidney tissue of the removed specimen, which represented a large sac, appeared to be reduced to a thin layer of fibrous tissue. Microscopic sections (Dr. Ophüls) show on inside of sac layer of vascular granulations and cicatricial tissue which is partly covered with stratified epithelium. In some sections the kidney tissue shows a diffuse fibrosis, dilatation of capsules of glomeruli, tubules wide, filled with desquamated epithelium. In other places all that is left is dense fibrous tissue. Patient made an uneventful recovery.

Comment.—The cutaneous zone of herpes zoster in this case corresponds, according to Head, to the first and second lumbar (or ileo-inguinal, genitocrural and external cutaneous) nerves. The course and extension of the skin lesion comprises an area which is innervated by the crural branch of the genitocrural and the middle cutaneous nerves, which latter nerve has communicating fibers with the crural branch of the former. It is possible that the eruption of herpes was superinduced in this case by the passing of the ureter catheter to the left renal pelvis, as the patient, soon after each cystoscopic sitting, complained of colicky pains in the left lumbar region. In the three cases reported in the German literature, the herpetic eruptional zone was located on the back in or near the lumbar region, corresponding to the last two dorsal nerves, while the location of the zoster on the anterior surface of the thigh in my own observation suggests an irritation of the lower or lumbar portion of Head's spinal center for kidney affections.

Since writing the above I find an analogue to the location of the herpetic cutaneous zone in two cases of herpes zoster reported by Rosenbaum,[3] in connection with kidney affections. One of the observations concerns a girl of 11 years, who had to undergo nephrectomy on account of a left-sided kidney rupture. Eighteen days after the accident, a zoster appeared over the lumbar region as well as on the lateral and anterior surface of the thigh on the left side, an area which is innervated by the upper roots of the lumbar plexus.

CASE 2.—*Past History.*—A farmer of 51 was admitted to the hospital in August, 1910, on account of intermittent attacks of right-sided colic radiating from the costal arch downward. The attacks had gradually increased in severity during the last year, occurred about once a month and were invariably connected with vomiting of bile. Nothing of pathologic note could be ascertained by the general examination and clinical observation. On account of the presence of microscopic pus in the urine, a right-sided renal lesion (probably nephrolithiasis) was suspected, a presumption which was not substantiated by either the cystoscopic or radiographic examinations. Both renal secretions were clear and microscopically and functionally normal. Sugar reaction, for instance, was strongly positive on both sides almost simultaneously, fifteen minutes after phloridzin injection. On these findings a right-sided renal lesion was ruled out and a previous gonorrheal infection, involving the prostate, was held responsible for the pus found in the urine. With no other evidence in favor of the probable existence of a cholelithiasis or, possibly, a chronic appendicitis than the symptoms present during the attacks, an exploratory laparotomy was performed at the patient's own request revealing all abdominal viscera normal, save an elongated and tortuous appendix which after its removal showed an obliteration of the lower half of its lumen. The patient's rapid recovery was, about two weeks after the operation, interrupted by a slight chill, rise of temperature and tenderness over the right chest and back, where an herpetic eruption appeared extending from the external margin of the manubrium sterni to the median line of the back. The zoster, for as such the cutaneous lesion was readily recognized, covered the sixth costal interspace extending to the tenth intervertebral space on the back, corresponding to the tenth dorsal nerve of the spine. The zoster gradually healed within two weeks and the patient returned to his home in the country in excellent condition. A few months later the same attacks of right-sided abdominal colic set in again with greater intensity and more frequently than before. The patient began to suffer from frequent and urgent micturition, independent of the attacks, and the urine which was repeatedly sent for examination was cloudy and contained pus in abundance. The pains during the attacks were now reported to radiate toward the bladder and scrotum. The patient reëntered the hospital last May.

Examination.—Cystoscopy now showed the picture of a marked cystitis; right ureteral orifice pouting, emitting turbid fluid; the right renal secretion was cloudy and contained, microscopically, abundant pus and numerous blood-shades, while the urine obtained from the left kidney appeared macroscopically and microscopically normal. Functionally, the right kidney was found to be materially deteriorated as against its left mate, from which normal values were obtained. Blood cryoscopy showed 0.568, *x*-ray plates were negative for calculi shadows. Pyelography demonstrated the moderately enlarged and irregularly shaped right renal pelvis to be located unusually high between the ninth and eleventh costal interspaces. The injection of collargol solution required for pyelography caused, as the patient stated, the same pain as during the previous attacks of colic.

Operation.—Exposure of the right kidney was extremely difficult on account of its location high under the ribs and owing to many dense perinephritic adhesions. A severe hemorrhage occurred from an aberrant renal blood-vessel imbedded in adhesions and covering the ureter near the lower pole of the kidney. Finally, the organ was sufficiently freed to permit nephrotomy. The cut surfaces of the kidney presented many small cavities containing pus and sandy detritus; the renal pelvis and upper portion of the ureter were widened and filled with pus and fragments of gravel. The kidney was therefore removed, a small tear in the pleura was carefully repaired and the wound closed in the usual manner.

The patient rallied well from the operation and made an uneventful recovery. At the time of his discharge from the hospital he urinated about once every six hours; urine clear; its daily quantity about 1,800 c.c., microscopically normal. The patient's general condition was excellent.

Comment.—Although the location of colicky pains pointed in this case to a kidney lesion, an exact diagnosis could not be made for many months on account of the negative palpatory, cystoscopic and radiographic findings. The appearance of the zoster soon after the first operation was most decidedly superinduced by the bruising of intestinal loops and sympathetic fibers during the exploration of the abdominal cavity. The location of the zoster on the chest and back, somewhat above Head's renal zone and corresponding to the tenth dorsal nerve, finds its explanation in the unusually high position of the diseased kidney. The case proves the correctness of Head's teachings and clearly demonstrates the diagnostic aid which could have been derived, at the time, through the correct interpretation of the herpetic eruption on Head's cutaneous zone for kidney lesions.

CONCLUSIONS

A careful investigation of Head's hyperalgetic cutaneous zones should in future be made in all cases of abdominal colic of otherwise doubtful character.

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3. Rosenbaum: Deutsch. med. Wchnschr., 1911, No. 24.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

LANOLIN.—A non-proprietary name applied to Adeps Lanæ Hydrosus, U. S. P. For description see the Pharmacopeia or the Physician's Manual of the Pharmacopeia and National Formulary.

COLON BACILLUS VACCINE.

G. H. Sherman, Detroit.

Colon Bacillus Vaccines.—Marketed in two strengths: 1. Each Cc. contains about 40,000,000 killed bacilli. 2. Each Cc. contains about 100,000,000 killed bacilli.

GONOCOCCUS VACCINE.

G. H. Sherman, Detroit.

Gonococcus Vaccines.—Marketed in two strengths: 1. Each Cc. containing 20,000,000 killed bacteria. 2. Each Cc. containing 100,000,000 killed bacteria.

Gonococcus and Staphylococcus Albus Vaccine.—A mixed vaccine containing in each Cc. gonococcus 100,000,000 and staphylococcus albus 400,000,000.

PNEUMOCOCCUS VACCINE.

G. H. Sherman, Detroit.

Pneumococcus Vaccines.—Marketed in two forms: 1. Containing in each Cc. 40,000,000 killed pneumococci. 2. Containing in each Cc. 100,000,000 killed pneumococci.

Pneumococcus and Streptococcus Vaccine.—A mixed vaccine containing pneumococcus 30,000,000 and streptococcus 20,000,000.

STAPHYLOCOCCUS VACCINES.

G. H. Sherman, Detroit.

Staphylococcus Pyogenes Albus Vaccine.—Each Cc. contains about 300,000,000 staphylococcus pyogenes albus.

Staphylococcus Pyogenes Aureus Vaccine.—Each Cc. contains about 300,000,000 staphylococcus pyogenes aureus.

Staphylococcus Pyogenes Albus and Aureus Vaccines.—Marketed in four forms: 1. A mixed vaccine containing in each Cc. staphylococcus pyogenes albus and aureus each 100,000,000. 2. A mixed vaccine containing in each Cc. staphylococcus pyogenes albus and aureus each 200,000,000. 3. A mixed vaccine containing in each Cc. staphylococcus pyogenes albus and aureus each 300,000,000. 4. A mixed vaccine containing in each Cc. staphylococcus pyogenes albus 400,000,000, and staphylococcus pyogenes aureus 200,000,000.

Staphylococcus Pyogenes Albus, Aureus and Citreus Vaccine.—A mixed vaccine containing in each Cc. Staphylococcus pyogenes albus, aureus and citreus each 100,000,000.

STREPTOCOCCUS VACCINE.

G. H. Sherman, Detroit.

Streptococcus Erysipelatis Vaccine.—Each Cc. contains about 20,000,000 killed streptococci erysipelatis.

Streptococcus Pyogenes Vaccine.—Marketed in two strengths: 1. Containing in each Cc. 30,000,000 killed streptococci. 2. Containing in each Cc. 60,000,000 killed streptococci.

Streptococcus Pyogenes and Micrococcus Catarrhalis Vaccine.—A mixed vaccine containing in each Cc. streptococcus pyogenes 30,000,000 and micrococcus catarrhalis 100,000,000.

Streptococcus Pyogenes, Staphylococcus Pyogenes Aureus and Albus Vaccine.—A mixed vaccine containing in each Cc. streptococcus pyogenes 30,000,000 and staphylococcus pyogenes aureus and albus each 100,000,000.

Streptococcus Pyogenes and Colon Bacillus Vaccine.—A mixed vaccine containing in each Cc. streptococcus pyogenes 30,000,000 and colon bacillus 40,000,000.

Staphylococcus Pyogenes, Pneumococcus and Staphylococcus Pyogenes Aureus Vaccine.—A mixed vaccine containing in each Cc. streptococcus pyogenes 30,000,000, pneumococcus 40,000,000 and staphylococcus pyogenes aureus 150,000,000.

Streptococcus Pyogenes, Staphylococcus Pyogenes Aureus and Albus Vaccine.—A mixed vaccine containing in each Cc. streptococcus pyogenes 60,000,000, staphylococcus pyogenes albus and aureus each 200,000,000.

TYPHOID BACILLUS VACCINE.

G. H. Sherman, Detroit.

Typhoid Bacillus Vaccine.—Marketed in three forms: 1. Each Cc. contains about 50,000,000 killed typhoid bacilli. 2. Each Cc. contains about 500,000,000 killed typhoid bacilli. 3. Each Cc. contains about 1,000,000,000 killed typhoid bacilli.

Therapeutics

TUBERCULOUS MENINGITIS

Few diseases are more discouraging to the practitioner, or more disastrous in their results than tuberculous meningitis. Except during the occurrence of epidemics of cerebrospinal meningitis, tuberculous meningitis is estimated by Holt to cause 75 per cent. of the deaths from acute meningitis in children. While epidemic meningitis occurs most frequently between the ages of 2 and 15 years and is also frequent in children under 2 years of age, a very large proportion of the cases of tuberculous meningitis occurs in children under 1 year of age, and particularly between the ages of 9 and 12 months. Some observers think these cases more frequent in April, May and June than in other parts of the year, and conclude that this is due to the general prevalence of respiratory diseases during the late winter and early spring months.

This disease is now definitely recognized as being caused by the tubercle bacillus. It has been generally considered that heredity has a very considerable influence in the etiology of the disease, but the tendency among modern observers is to conclude that what has been heretofore classed as hereditary influence is really exposure of the child to direct contagion from persons suffering from pulmonary tuberculosis. Perhaps children between 9 and 12 months of age are more exposed to this sort of contagion than children of other ages, and also perhaps this sort of contagion is especially operative during the spring months.

It is probable that the contagion is taken into the body through the respiratory organs, and is transmitted to the brain through the circulation. The old idea that the contagious element was transmitted to the brain through the cribriform plate of the ethmoid bone seems to be losing favor.

On post-mortem examination of children who die with tuberculous meningitis the most extensive pathologic changes are found at the base of the brain, and it has been said that cases in which the pathologic lesions are confined to the convexity of the brain are unknown. The lesions affecting the brain may extend to the spinal cord and to the ventricles of the brain. These pathologic changes often appear to be slight compared with the gravity of the symptoms which have been observed during life.

Some have supposed that the disease is more likely to affect delicate and ill-nourished children, but careful observation seems to have shown that this is wrong, and that well-nourished and healthy children are apparently as likely to be affected by the disease as those who are debilitated and ill-nourished.

The disease often comes on insidiously. A slight change in disposition may be the first symptom noticed. There may be irritability, or an indisposition to take notice of and be interested in things that are going on. One of the earliest prominent symptoms is headache. This may be exceedingly severe, and is likely to be attributed to some other cause, as stomach disturbance, or constipation. Headache is not so common in children as in adults, and a continuous headache, if the child is old enough to complain of it, should arouse suspicion of the presence of some intracranial trouble. Vomiting is a common early symptom. It may be of the projectile character, and unaccompanied by nausea. Fever is an early symptom. It may not be of high grade at first, but usually after several days attains a height of from

103 to 105 degrees. Occasionally the earliest symptom to arouse alarm is a severe convulsive attack. This may be followed by other convulsions at longer or shorter intervals.

After the disease has lasted a variable number of days, usually from five to ten, the patient begins to become stupid, and finally becomes entirely unconscious.

Twitchings of the muscles of the arms and legs are common, and the muscles moving the eye-ball may also be affected by these localized convulsive movements. The muscles in the back of the neck and along the spine usually become more or less rigid early in the disease, so that lifting the head or moving the body causes pain. The Kernig sign is usually present. This can be determined by flexing the thigh on the body and then extending the leg on the thigh. If there is irritation of the nervous system from meningitis, this movement will be accompanied by pain and an increasing concavity of the dorsolumbar spine.

The pupils at first may be contracted, but usually later are dilated. The fontanels may be distended.

Death may occur in five or six days, or the disease may be protracted for from two and one-half to three weeks. Rarely the patient lives four or five weeks. Most cases terminate fatally; only exceptional cases of recovery have been reported.

It would seem that the diagnosis of the disease is commonly attended with some difficulty. Certainly a large proportion of mistakes are reported by hospital physicians who see cases after they have been seen by outside practitioners. At the present time it would seem that no one is justified in treating a patient in whom the possibility of the presence of this disease must be taken into account, without performing a lumbar puncture and having the spinal fluid examined microscopically. Since lumbar puncture was introduced by Quincke, in 1891, it has gradually grown in importance as an aid to diagnosis. Like the results of other methods of diagnosis, the results of this method are not invariably infallible, but the results are definite in so large a proportion of cases that its employment should never be neglected. As a rule the tubercle bacillus is found in the spinal fluid obtained by lumbar puncture. Some writers state that this is the fact in 90 per cent. of cases.

Examination of the cells contained in the spinal fluid should also be made. It has been supposed by some investigators that the character of these cells indicated the character of the meningeal inflammation; that in epidemic meningitis polynuclear cells were found in the exudate, while in tuberculous meningitis the mononuclear cells or lymphocytes were present in greater proportion. While perhaps these conditions exist in the majority of cases, it is now believed that the lymphocytes characterize diseases of long standing, and that they may be found in cases of epidemic meningitis which have been protracted.

The other symptoms which are to be taken into consideration in making a diagnosis are the headache, the retraction of the head, the vomiting, and the gradually increasing stupor. The diseases which must be borne in mind and which should not be mistaken for tuberculous meningitis are epidemic meningitis, meningitis due to other forms of infection, malarial infection, influenzal gastro-intestinal disorders, various toxic conditions, and middle-ear or mastoid inflammation.

Besides the lumbar puncture, another diagnostic aid which is of considerable value in this disease is the von Pirquet reaction. The cutaneous reactions from this test are not objectionable, and the test is not a difficult one to employ. Lucas, of Boston, found that of thirty cases of tuberculous meningitis, twenty gave positive reactions. This indicates that the method has considerable value, but cannot be absolutely relied on in every case.

The treatment of this disease cannot be undertaken with any expectation of a cure. The prognosis is so very grave, and recoveries are so rare, when the disease is definitely determined to be tuberculous in character, that much cannot be expected, and but little hope can be held out to the parents, from any treatment.

The treatment should be commenced with a thorough evacuation of the bowels with a large dose of calomel. To a child a year old as much as a grain may be given at one dose. It is better to give this amount in a single dose than to give it in divided doses.

External applications are held in considerable repute by most practitioners. If it can be determined early in the disease that there is an inflammation at the base of the brain, depletion of the vascular system should be employed. This may be accomplished by the application of one or two leeches over the mastoid process. Cold, by means of ice-bags, should be applied intermittently to the head, and ice-bags may be applied over the spine; or, counter-irritation may be used by means of a mild mustard paste, applied over the whole length of the spine or over the neck and back of the head.

Other internal medication which may be administered with a view of palliating the uncomfortable symptoms, include opium, which may be administered if the child seems to suffer acute pain in the head, as evidenced by constant severe crying, and insomnia.

If there is restlessness and muscular twitching, and convulsions, the bromid of sodium should be given, in a dose of 0.30 gm. (5 grains), to a child 1 year old, repeated in four hours, if needed.

After the first week the iodid of sodium may be given with the hope (generally a vain one) of removing the products of inflammation at the base of the brain. A twentieth of a gram (about 1 grain) may be given three times a day to a child one year old. Large doses are of no value, and will do harm.

Liquid nourishment should be given in the form of milk, either plain or diluted with lime water, or peptonized. It should be given at regular intervals, both to relieve the thirst and to maintain the nutrition.

The internal use of remedies intended to destroy the bacillus has not found many advocates. If one were inclined to feel that the administration of such remedies increases the hope of recovery, one might administer creosote, in doses of ¼ drop, repeated at intervals of three hours.

In view of the comparatively recent observation that hexamethylenamin has been found in the cerebrospinal fluid a short time after it has been taken by the mouth, it might seem desirable to administer this drug in tuberculous meningitis, but it is not reasonable to expect that such favorable results will follow its use in this disease as have been reported from its use in epidemic cerebrospinal meningitis.

The preventive or prophylactic treatment demands that all children should be absolutely separated from every individual suffering from pulmonary tuberculosis. In this way only can one feel confident that the disease may be avoided. Furthermore, as the tubercle bacilli are believed to be more or less present everywhere where human beings are found, by systematic cleansing of the mouth and throat, one may hope to avoid contamination with the bacilli.

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[For other information see second page following reading matter]

SATURDAY, SEPTEMBER 9, 1911

VIRCHOW'S GENEROSITY

It is well known that in the last years of his life Virchow was very much of a reactionary. He who, in his ardent youth, had been a fiery champion of democracy and a passionate advocate of the improvement of medicine and public hygiene in the broadest sense, in later years, as our German confrères have been not slow to remind us, became a typical caviler and a sort of cool devil's advocate in regard to many things of the utmost importance to the great preventive movement of our time.

There is no need to censure Virchow for his lukewarm attitude toward Darwinism. He was an expert anthropologist and craniologist and his views on natural selection and the descent of man were entirely his own affair. They did not hinder the growth of the doctrine of evolution. But it cannot be denied that Virchow's relation to the work of Koch, Behring, Loeffler and the other leading expositors of the bacterial theory of infection was one of smug civility and ill-concealed indifference, if not of positive *nil admirari*. The reason is not far to seek. Like all old men he was an inevitable conservative, and it did seem, at first blush, as if the modern theory of the blood-serum as the battle-ground of the infectious processes, in all appearance a revival of the humoral pathology of Hippocrates, would be likely to displace the "solidist" conceptions (*omnis cellula e cellula*) advanced by Virchow himself. It was natural enough that the old veteran should decline to wear "the foolish face of praise," since he could not foresee that Ehrlich would come to the rescue of his cellular pathology by showing that the seat of war is, after all, in certain specialized atom-groups belonging to the peripheral molecules of the cells themselves. Neither should we resent Virchow's disapprobation of the course of the United States in the Philippines. If, as President Andrew D. White once related,[1] even Mommsen the historian could not understand how we were driven to take possession of those islands, it is hardly likely that Virchow could.

A man has a right to be judged by the best that is in him, and we may contrast the ultra-conservative Virchow of the declining years, not so much with the "heaven-storming" youth who pitched into Bismarck about the typhus fevers in Silesia, as with the mature man of middle life who gave us those fine, catholic appreciations of Harvey (his favorite historical figure), Bacon, Morgagni, Glisson, Schönlein, Schliemann of the Trojan excavations and Pope Innocent III, the pioneer of the great hospital movement in the Middle Ages. We have spoken of his attitude toward this country during the Spanish-American war. It did not ruffle America in the least. Why? Because American physicians can never forget Virchow's classical tribute of praise to the work of the Medical Corps of the United States Army during the Civil War,[2] especially of the "critical, truly scientific spirit, open-mindedness, sane and practical common sense which gradually penetrated all circles of the American army administration, and with the wonderful cooperation of an entire nation, reach the high-water mark of humanitarian achievement in any great war on record." The publications of the United States Army Medical Department of this period made, he asserts, "a new era in the history of military medicine."

Perhaps, however, the most striking example of Virchow's enthusiasm and generosity of spirit is his noble tribute to Pasteur. When the great chemist died he was by no means a popular figure in Germany owing to the fact that, from a natural soreness over the reverses of his native country in the Franco-Prussian War, he had declined the degree conferred on him by the University of Bonn and other distinctions offered by the German government. In consequence he was frequently caricatured and belittled in certain quarters, and even Koch was, at first, anything but well-disposed toward his work. When Pasteur passed away in 1895, it devolved on Virchow, as president of the Berlin Medical Society, to pay the usual memorial tribute to the illustrious dead.[3] He began by pointing out that the newspapers (as usual) misrepresented Pasteur's position in science by hailing him as the discoverer of this or that bacillus. Pasteur's claims (and here Virchow's words begin to turn to flame) were of an entirely different order. His position in science is immortal, first, by his conquest of the doctrine of spontaneous generation; again, because he was the first to handle the bacterial theory of infection in "the grand style," and thence to attempt a working theory of immunity and a practical enlargement of Jenner's original scheme of preventive inoculation. It is certain, says Virchow, that the whole modern tendency of such inoculations owes its inception to Pasteur, and no physician, only a chemist, could have hit on his peculiar modes of experimentation. After enlarging on this theme, Virchow winds up in a tone of reasonable protest against the German misunderstanding of Pasteur's true position as a patriot. He reminds his fellow

1. Century, N. Y., 1904-5, lxix, 311-312.

2. Virchow: Die Fortschritte der Kriegsheilkunde, Berlin, 1874, p. 7.

3. Virchow: Verhandl. d. Berl. med. Gesellsch, 1895, xxvi, 161.

countrymen that Pasteur laid the foundations of his scientific work as a teacher in Strasburg, now a German city; that it was in Strasburg that he found his wife, and that he must have loved this place with his whole heart. That the loss of this place to his country should have affected him deeply, we who love our own country, said Virchow, should not hold up as a fault against him. When we consider how little enthusiasm Virchow had for the modern theory of infection and its consequences, this defense of Pasteur seems one of the finest actions of his life.

THE CHARGE AGAINST DR. WILEY

When the charge against Dr. Wiley was first made public even his friends supposed that it could be at least sustained on a technicality. The investigation has brought out the fact that Dr. Wiley was not guilty of even the trivial technical violation that was claimed. The charge was that he had made a secret agreement with Dr. Rusby concerning the rate of compensation the latter was to get, based wholly on a letter which Dr. Wiley was alleged to have received from Dr. Rusby. This letter is reproduced in full elsewhere.[1]

It will be noticed that in this letter the agreement spoken of by Dr. Rusby was to be subject to the approval of the Department of Agriculture, or as he put it, valid "if approved by the department." This part of the letter was suppressed by the Committee on Personnel in submitting its charges against Dr. Wiley to Secretary Wilson. Nor was this all; it was proved that this letter had neither been received by Dr. Wiley nor sent to him. Dr. Rusby had written the letter, it is true, but it had never been sent. A carbon copy of the letter, however, found its way into Dr. Rusby's files and, with a mass of other material was sent by him to the Committee on Personnel when he was requested to furnish a copy of all his official correspondence. It was further brought out that the Committee on Personnel had the means of knowing that this letter had not been received by Dr. Wiley because he had sent a complete list of all the letters that he had received and had also stated that no personal letters had ever passed between him and Dr. Rusby on this subject.

To sum up, the case amounts to this: The charge against Dr. Wiley was that he had entered into a secret agreement with Dr. Rusby by which the latter was "to be paid an illegal rate, differing from the rate specified in the appointment." The facts were: No such contract was ever made; the letter on which the committee based its charge that such a contract had been made had never either been received by Dr. Wiley or sent by Dr. Rusby. While a letter on the subject had actually been written by Dr. Rusby, even had it been sent, it was perfectly plain that there was no idea of any "secret agreement," as it was specifically stated that the rate of compensation would be agreed to by Dr. Rusby only "if approved by the department." In spite of all this, the enemies of the chief of the Bureau of Chemistry used this letter which they had means of knowing had not been received by Dr. Wiley and, not content with that, they suppressed the very part of the letter which, even had it been sent, would have made it impossible for them to bring the charge against him of having entered into a "secret agreement" for the purpose of evading the law.

The enemies of the pure food law at Washington must be in desperate straits when they find it necessary to attempt to oust honest and efficient public servants by means of trumped-up charges of a trivial and technical nature based on manufactured evidence and on garbled and suppressed facts. Dr. Wiley and his associates have come out of the present investigation completely vindicated and more firmly entrenched than ever in the hearts of the American people.

While the investigating committee has adjourned temporarily and will not submit its findings for some weeks, the public, through the press, has already delivered judgment. Dr. Wiley is not only innocent of even the trivial technicality brought against him, but he has been shown to be the victim of as unprincipled a conspiracy as was ever manufactured against a competent and public-spirited official. Many interesting details have been brought out in this investigation that the public and the medical profession ought to know. Some of these appear elsewhere[1] in this issue; others will follow.

THE VENDER OF INTELLECTUAL NOSTRUMS

It was a notable warning which President Butler recently gave the graduating class of Columbia University, against the nostrum-venders, political, literary and religious—and he might well have added, the medical—all of whom now so dreadfully infest our American civilization. These, he well observed, are the men of "new ideas" (such ideas as Plato discarded many centuries ago as perverse); the men (and women) who preach "new thought" without ever having learned to think; the multitudinous advocates of change for the sake of change; of reforms springing from no need and growing out of no experience; the shallow, unqualified, half-baked horde who are letting loose on the land a torrent of talk, to the degree that "the educated man or woman of to-day has literally to struggle against being swept into the current of irrationalism."

Knowledge has come on our people in veritably cyclonic measure, while wisdom has emulated the snail in its progress. "The marvelous last half-century of science," continued President Butler, "has made absolutely no impression on the thinking habit. Science has destroyed many prepossessions and not a few beliefs; but it has not yet taught mankind to think. Our age is far less reflective than was the eighteenth or the first half of the nineteenth century; our people are now ever busy hunting for something new."

1. Propaganda for Reform department, this issue, page 913.

"The present age is certainly that of the crowd and the demagogue," continued the president of Columbia. The crowd, with its well-marked mental and moral peculiarities, is everywhere in evidence; and demagogues of all kinds din its ears with hungry cries. The art of demagoguery is easy, and it is quickly learned; and the rewards of its successful practice "have strange fascination for minds and characters that we would like to think in all respects worthy."

Thus has President Butler pilloried the literary, the political and the religious demagogue. We should for ourselves have prefixed the qualification "pseudo" to each of these adjectives. Nor are Butler's observations any the less applicable to the pseudomedical demagogue, and the amazing impression he makes on the crowd. Indeed, the offices of religious and medical nostrum-vender are quite generally combined in the one engaging personality. The "new-thoughter," for example, while piloting you skyward, will at the same time attend to your physical well-being—for a consideration. There are in point of fact, literally hundreds of cults—essentially psychopathic epidemics—in the United States that are thus dominated. It is unpleasant indeed to observe in them how often the abnormal, the insane even, have exerted, and now exert, a noxious influence on people who are, to begin with, evenly enough balanced. The pseudoreligious movements (which quite invariably undertake to heal also the body) have in common certain well-defined earmarks. Each despises and decries all the rest: With us, assures one leader, you shall find peace here and hereafter, with the cure of all your ailments; but as you hope to escape eternal perdition, have nothing to do with that shop across the way! Some of these cults are offshoots from others, enterprises originated and conducted by malcontent demagogues who have not had a fair share of the spoils from their erstwhile leaders. The demagogue in charge of each cult—its nostrum-vender-in-chief—insists incessantly and blatantly that its tenets are the only true ones; and its devotees will as insistently, and much more blindly, back him up. There never, by any chance, was a true system other than the particular one under consideration. Any given demagogue can never, by any accident, make a statement that is not consonant with the plain, unvarnished truth. Each demagogue strives, with most consummate assurance, to outdo all others in extravagant claims (such as are impossible in nature) to have achieved marvelous and miraculous results, especially in the cure of disease. But no statement any leader ever made is more marvelous than the gullibility with which the devotee has accepted it. "Far-fetched analogy, baseless assertion, the uncritical assimilation of popular superstitions, a great deal of prophecy after the event, much fanciful elaboration of detail, ringing the variations on a sufficiently complex and non-demonstrable proposition, cultivating a convenient vagueness of expression, together with an apologetic skill in providing for and explaining exceptions, the courage to ignore failure, the shrewdness to profit by coincidences and half-assimilated smatterings of science, and, with all, an insensibility to the moral and intellectual demands of the logical decalogue"—such, observes Jastrow, are the elements on which the medicoreligious nostrum-vender rides to most meretricious success.

Current Comment

LANOLIN NOT PROPRIETARY

As long ago as 1902, a court decision of great importance to physicians was rendered, which, curiously enough, seems to have escaped the notice of the medical profession. At that time, the court held that the word "lanolin," first applied to wool fat by the original patentees, was a general designation for that substance, and that this word became a non-proprietary name when the patent on the product expired. Although it is nine years since this decision was rendered, many physicians still avoid using the term "lanolin" and use the somewhat cumbrous title of the Pharmacopeia. To help remove the misapprehension that exists regarding the use of this word, the Council on Pharmacy and Chemistry has decided to list lanolin as a synonym for hydrous wool fat (adeps lanæ hydrosus) in New and Non-official Remedies.[1] Physicians can therefore use the shorter term, as it is now public property.

INFANTS' MILK DEPOTS AND THE RESULTS OF THEIR OPERATION

Following a plan carried out in 1908 and 1909, Dr. J. W. Kerr[2] of the Public Health and Marine-Hospital Service, assisted by Drs. Henry L. Coit and Roland G. Freeman (the three constituting a committee of the American Association of Medical Milk Commissions), has compiled data concerning the operation of infants' milk depots in the United States in 1910. The results, while interesting, are not conclusive as to the exact value of these depots, the principal and important reason being the lack of accurate vital statistics in many of the states and cities where this work is carried on. Data were received from forty-three institutions located in thirty cities, and while the general object of all the depots is the protection of infant life, on account of the lack of uniformity of specific objects and of methods, and incompleteness of statistics, the results in the different cities are not comparable in such a way as to bring out the true value of this work. There was difficulty in determining in every instance whether it is the endeavor of the institution to accomplish good by meeting the purely hygienic needs of infants or simply to relieve the distress brought about by poverty. The data compiled, however, cover, among other things, the following points: object of institution; method of operation and manner of maintenance; instruction to mothers in infant

1. Page 902, this issue.
2. Public Health Reports, Aug. 18, 1911.

hygiene, given by physicians or nurses, in the homes or in central consultations; distribution of the milk by agencies, free or otherwise; proportions of infants who were ill and well, number fed, average age, quality and preparation of milk, modifications, etc., and, chief among the objects of inquiry, the mortality-rate of infants under 1 year of age, and among children fed on dispensary milk one month or over during the year. The tabulations of this report show that the mortality-rate for infants under 1 year varied from 12 to 30 per cent., and in children fed on dispensary milk for one month or over during the year, from no deaths to 20 per cent. These figures may or may not prove much, but the information obtained is of interest and emphasizes the importance and necessity of uniformity of methods in conducting these institutions, and the supreme importance of accurate and uniform reports on births and deaths. On this latter point the report says: "The correct infant mortality-rate is the ratio of deaths of infants under 1 year of age to the number of children born alive during the year. In the absence of registration of births in many cities, therefore, no such rate can be determined, and since registration of births in the great majority of cities is very incomplete, any ratio based on the returns would be misleading. The data presented indicate how desirable it would be to know the correct infant mortality-rate, and emphasize in some measure the importance of the accurate registration of both births and deaths." It might also be added that until these two objects are attained and the various agencies for infant welfare are better coordinated, much effort and expenditure in this direction will be wasted.

THE "CASE" OF THE PHYSICIAN

The physician and the lawyer both deal with "cases"; but while the latter has not learned to call his client a "case" (except jocularly), the former often seriously applies to his patient the word which properly signifies the given instance of disease or the given group of facts constituting the condition. The misuse of the term is an unfortunate one, not so much for the language as for the profession. The language has assimilated without disaster many more violent metonymies; but the habit of mind to which this particular figure of speech bears witness is one which works against mutual sympathy and confidence between the physician and the patient and even against real professional usefulness. The surgeon who really thinks of his patient as a "case" is the one who is inclined to be satisfied with a mere operative recovery; the physician with the same tendency of mind is likewise inclined to be satisfied if he has demonstrated his own skill, even if he has not penetrated far enough into his patient's characteristics and circumstances to know the ultimate causes of the disease and the probability of its recurrence. Whatever the scientific attainments of a physician, there is nothing which more surely alienates the public from him than this tendency to regard his patient as a mere living illustration or embodiment of disease or injury. The physician himself may be the last to become aware of this feeling, for it is not often so adequately voiced as it was by one mother, who, exasperated by the constant reiteration of "the case," exclaimed: "Dr. ——, I don't want to hear another word about the 'case.' This isn't a case; this is my baby." We suggest once more[1] that it is well to beware of confusing the "case" and the patient.

Medical News

ARIZONA

Personal.—Dr. Henri Ap John, Yuma, physician in charge of the Yuma reclamation project and in charge of the reclamation service hospital, has broken down from overwork, and is taking a few weeks' rest in southern California.——Dr. George F. Manning, Flagstaff, while stepping off a train, August 4, turned his foot, causing a sprain of the ankle.——Dr. Charles L. Edmundson, formerly mayor of Bisbee, has retired from practice and moved to Los Angeles, Cal.——Dr. Carl Lund, Douglas, has resigned from the medical staff of the Copper Queen and will practice in Oklahoma City.

CALIFORNIA

Laboratory for Hospital.—Mrs. Harriman, widow of the late E. H. Harriman, has given $50,000 for the establishing of a bacteriologic and pathologic laboratory to be attached to the present Southern Pacific General Hospital, San Francisco. It is to be known as the Harriman Memorial Laboratory.

Eradication of Squirrels.—A meeting was held in Modesto, August 26, at which the farmers were urged to help along the eradication of squirrels by establishing local poison squads. The purpose of establishing these squads is to prevent the spread of the squirrel-infested area into the foothills by clearing of squirrels a territorial belt in advance of the present area which is known as the suspected infected area, thereby making an additional barrier.

DISTRICT OF COLUMBIA

Personal.—Dr. Isadore Burman has sailed for Europe.——Dr. William F. R. Philips left August 22 to assume the professorship of anatomy in the medical department of the University of Alabama, Mobile.

Veiled Prophets' Committee.—The following is the medical committee announced for the Veiled Prophets' reception, September 25: Dr. Floyd V. Brooks, chairman; Dr. Lewis A. Walker, vice-chairman; Drs. Wade H. Atkinson, George K. Baler, Grafton D. P. Bailey, William H. Brandenburg, Clarence R. Dufour, Leon L. Friedrich, Frank E. Gibson, Edward M. Hasbrouck, Joseph Ernest Mitchell, William O. Owen, Ralph A. Quick, Edward G. Seibert, Lewis H. Taylor, Clarence A. Weaver and Frederick Yates.

GEORGIA

Personal.—Dr. J. Calvin Weaver, Atlanta, has been appointed surgeon of the Federal Prison, Atlanta, vice Dr. Alfred L. Fowler, resigned.——Dr. R. C. Orr, Athens, has been appointed a jury commissioner for Clarke County.

District Association Meeting.—The fifth annual meeting of the Eighth District Medical Association of Georgia and the Wilts County Medical Society was held in Washington, August 16, under the presidency of Dr. Richard J. Robins, Siloam. The following officers were elected: President, Dr. Thomas J. Wills, Washington; vice-president Dr. L. E. Roper, Comer, and secretary-treasurer, Dr. Daniel H. DuPree, Athens.

Work Done at Mount Alto.—The annual report of the State Tuberculosis Sanatorium, Alto, states that 180 patients were cared for during the year with 60 in residence, at its close. One of the main features of the institution is educational and the prevention of the disease is the point which the authorities desire to attain. An appropriation of $50,000 was passed by the House of Representatives, $25,000 of which is available next year and $25,000 in 1913. This money will be used for new buildings and sleeping quarters.

1. See Bad English, Queries and Minor Notes, THE JOURNAL A. M. A., Dec. 22, 1906, p. 2108.

ILLINOIS

Hospital Attendants Suspended.—Plans of seven attendants of the Elgin State Hospital, to strike, August 29, because they were not allowed one day off each week, were frustrated by their prompt suspension from the state service.

Personal.—Dr. George S. Rainey, Salem, was elected surgeon at the twenty-ninth annual Illinois Soldiers' and Sailors' Reunion held in Duquoin, August 26.——Dr. Isaac F. Freemmel of the staff of the Elgin State Hospital has been temporarily transferred to the staff of the Illinois Hospital for the Feeble Minded, Lincoln.

Fire at Cook County Institutions.—A fire which occurred in the vacant west wing of the Cook County Institutions, Dunning, August 27, necessitated the removal of about two hundred patients from the Cook County Insane Hospital. They were removed without casualty under the care of Drs. Carl F. W. Eberlein, chief of the medical staff, J. A. Smith and Robert H. Rea. The fire caused a loss of $5,000. The medical staff and nurses were commended by the president of the county board for their excellent work in removing patients from the building during the fire.

Chicago

Theft of Medical Books.—Joseph Suffrin, who is said to have started a preparatory medical school with the books of reference stolen by him from the John Crerar Library, was sentenced to six months' imprisonment in the Bridewell, August 29.

Home from Europe.—Dr. and Mrs. Nathan S. Davis and daughter, and Dr. and Mrs. Edward L. Moorhead and son, and Dr. and Mrs. Edwin B. Tuteur and daughter, Dr. William H. Falker, Dr. and Mrs. Clarendon Rutherford, Dr. William C. Wermuth and Dr. Robert Von der Heydt have returned from Europe.

Fire in Hospital.—Fire on the fifth floor of St. Bernard's Hospital, August 25, caused considerable excitement but was not attended by any casualty to patients.——Fire in a building on the opposite side of the street caused a panic in the Practitioners' Hospital, August 30, which was stopped only by strenuous and cool-headed work on the part of the nurses.

Home for Consumptives.—The Jewish Consumptive Relief Society has purchased a tract of land bounded by Belmont, North Fortieth and North Fifty-First Avenues and School Street, on which an institution for the care of indigent consumptives will be started. It is planned to erect first an administration building to cost about $15,000 and several shacks at a cost of $2,000 to $3,000 each.

IOWA

Personal.—Dr. Edward S. Bowman, Davenport, recently underwent operation.——Dr. Joseph C. Collester was seriously injured in a collision between his automobile and a freight train near his home in Spencer, recently.——Dr. Gilbert Baldwin, Ruthven, was struck by an automobile recently and sustained painful injuries.——Dr. David E. Beardsley has been appointed a member of the staff of St. Luke's Hospital, Cedar Rapids, vice Dr. Walter S. King, deceased.

KANSAS

Personal.—Dr. Oliver J. Taylor, Wichita, is reported to be ill at his home.——Dr. J. R. Perdom, Wetmore, has been appointed a member of the advisory commission of the State Sanatorium for the treatment of tuberculosis.——Dr. James Stewart has been appointed city physician of Topeka, vice Dr. Henry B. Hogeboom, resigned.——Dr. Charles H. Ewing, Larned, has been appointed head physician for the Modern Woodmen of America for Kansas.

KENTUCKY

Gift to Kentucky Tuberculosis Association.—The Kentucky association for the cure and prevention of tuberculosis has received a gift of $500 from Mr. T. Coleman DuPont of Wilmington, Del.

Hospital Patients Moved.—The staff and nurses of the Louisville City Hospital safely removed 136 patients for six squares into temporary quarters to be occupied during the erection of a new hospital building on the site of the old.

Personal.—The recent quarterly meeting of the Kentucky Midland Medical Association, held in Louisville, closed with an elaborate banquet given by Dr. Louis Frank in honor of Dr. Urbane V. Williams, Frankfort, first president and oldest member of the association.——The bungalow of Dr. Edward R. Palmer, Louisville, at Harrods Creek, was destroyed by fire August 10, with a loss of several thousand dollars.

LOUISIANA

Benefit for Charity Hospital.—Plans for a mammoth benefit for the Charity Hospital, New Orleans, are in progress. The object of the benefit is the collection of funds for the erection of an isolation building for contagious diseases. The hospital will commemorate its centennial of state ownership in October.

Gifts to Presbyterian Hospital.—At a meeting of the board of managers of the Presbyterian Hospital, New Orleans, August 16, the receipt of a check for $20,000 from the estate of the late W. R. McKowen, Jackson, was announced. It was decided by the board to establish a McKowen Memorial Charity ward in the institution.——A complete *x*-ray department under a skilled radiologist is to be put in this month.

Personal.—Dr. Edward L. McGehee, Sr., has been elected president and Dr. John L. Robinson vice-president of the board of health of Hammond.——Dr. Charles Chassaignac has been made chairman of the executive committee to make up plans and carry forward the work of cleaning and sanitation in New Orleans in cooperation with the city and health authorities.——Dr. Creighton Wellman has been made professor of hygiene and preventive medicine in Tulane University.

MARYLAND

Baltimore

New House Staff.—The following constitutes the new staff of house officers of Johns Hopkins Hospital: medicine, Drs. Arthur E. Bloomfield, Ernest G. Grey, Helen W. Smith and Julian M. Wolfsohn; gynecology, Drs. Veader N. Leonard and Walter G. Sexton; surgery, Drs. Barney Brooks, Hans Lisser, John A. C. Coston and William A. Fronty, and obstetrics, Dr. Arthur S. Rosenfeld.

Personal.—Dr. William H. Welch returned September 1 after an absence of eleven weeks spent in traveling through Alaska and Canada.——Dr. William B. Treat was operated on recently for appendicitis.——Drs. Henry O. and A. J. Neilson Reik have started for Europe.——Dr. E. Longsdorf has been appointed physician to the Isthmian Canal Commission with station at Panama.——Dr. Howard A. Kelly was operated on at Rochester, Minn., August 31, for adhesions from old gallbladder inflammation.——Dr. G. Halsted Boyland has returned from Europe.——Dr. Arminius C. Pole was stunned by lightning which wrecked the upper floor of his house during a severe storm, August 28.

MASSACHUSETTS

Bequests.—By the will of the late Miss Cornelia Francis Forbes, Westwood, $1,200 is bequeathed to the Vincent Memorial Hospital, Boston, and $300 to the Convalescents' Home, Milton.

Personal.—Dr. Edwin M. Murphy, Lowell, has returned from Europe.——Dr. Paul Carson head of the division of school hygiene of the health department of Boston, has resigned and will locate in Michigan.——Dr. Patrick J. Hughes has been appointed a member of the board of health of Lawrence, vice Dr. John H. Tobin, resigned.

NEW YORK

New York City

Hospitals for the City.—The city has filed plans for two four-story concrete hospital buildings on North Brother Island. The estimated cost of these buildings is $100,000.

Personal.—Dr. Fred H. Albee has been appointed professor of orthopedic surgery at Vermont Medical College.——Dr. Abraham A. Brill and Dr. and Mrs. John Thelberg have sailed for Europe.

New Pavilion for Measles.—The Health Department will erect a pavilion for the isolation of measles at a cost of more than $200,000 on the grounds of the Willard Parker Hospital, at the foot of East Sixteenth Street.

Money for Charity.—The contest against the will of Walter Duryea has been withdrawn and the terms of the will will be complied with. Under this will the Nassau Hospital at Mineola receives $25,000 outright and $75,000 when the sister of the testator dies; the Children's Home at Mineola, $5,000; Roosevelt Hospital, $15,000 to establish three memorial beds; Montclair Convalescent and Fresh Air Home, $2,000. Other philanthropic institutions were also remembered.

Rabies Shows Increase.—Since January the Health Department has had examined 3,469 animals for rabies, and fully 10 per cent. have been found to have the disease. For the corresponding period in 1910, 3,010 were examined and 172 cases of rabies were found. Besides the 279 people who have received Pasteur treatment in the city since January, 420

persons outside the city have been treated by the Health Department. Last year 189 received treatment in the city, and 437 persons outside.

Decline in Typhoid.—For eight weeks ending September 2, 1,042 cases of typhoid fever have been reported to the Health Department from all boroughs of the city. This is an increase of 241 over the cases reported in 1910. During the week ending September 2, only 121 cases were reported as against 158 for the same week last year. This seems to indicate that a normal point has been reached in the epidemic. The Health Department declines to go into the probable cause of the epidemic this summer except to say that the water-supply, is not responsible for the outbreak. Ten milk companies which were under suspicion in connection with the epidemic on the upper West Side have shut off their supplies.

New York Milk Committee Plans New Work.—The Committee for the Reduction of Infant Mortality of the New York Milk Committee feels that the results attained by the united efforts of the various agencies in combating infant mortality due to diarrheal diseases now plans to turn its attention to congenital troubles, which next to diarrheal diseases, cause the largest infant mortality. The committee has taken charge of 1,000 expectant mothers and will endeavor to bring all of the community's resources to bear which may enable the mothers to give birth to well children strong enough to combat the numerous ills that await them. An arrangement has been made with the Russell Sage Foundation which will detail a special nurse who will devote all her time to this work. The mothers will be given a careful physical examination and will be instructed in methods of proper care of themselves preparatory to the coming of the children. When an expectant mother is forced to overwork help will be provided for her. Arrangements will be made for these women to go to the hospital and no midwives will be permitted to attend these cases. After confinement adequate care will be provided for the mothers and the children will be referred to proper milk stations. Last year about one-third of all infant deaths occurred during the first month of life and the committee will endeavor to prove that this percentage can be materially lowered. If this proves to be true an active campaign along these lines will be instituted next summer.

NORTH DAKOTA

District Association Meeting.—At the annual meeting of the Grand Forks District Medical Association held in Grand Forks the following officers were elected: President, Dr. Anders A. Westeen, Grand Forks; vice-president, Dr. John Montgomery, Ardoch; secretary, Dr. George M. Williamson, Grand Forks; treasurer, Dr. Charles S. Marsden, Carrington, and delegates of the State Society, Drs. Henry H. Healy, Grand Forks, and John S. Countryman, Grafton.

PENNSYLVANIA

Hospital Buys Farm.—The Kensington Dispensary for the Treatment of Tuberculosis purchased a farm in Upper Providence Township for $6,994.08.

Personal.—Dr. John A. McKenna, of Lansdowne, has returned from Europe.——Dr. Malcolm Z. Gearhart, Reading, who was operated on for appendicitis in the Jefferson Hospital at Philadelphia, is reported to be improving.

To Prosecute Unregistered Midwives.—At a meeting of the Clarion County Medical Society on July 25, resolutions were passed that the society act as prosecutor in all cases of unregistered midwives, the evidence to be furnished by any member of the society.

Endorses Wiley's Work.—Blair County Medical Society at its meeting in Altoona, August 23, adopted resolutions expressing its belief in the professional skill of Dr. Harvey W. Wiley, extending their moral support in his efforts to protect human life and hoping that "no possibility of technical fault may cut short his most useful career."

Hospital Fire.—A fire caused by crossed electric wires in the Panther Creek Valley Hospital resulted in one death and $10,000 damage. The Reading and Lehigh Coal and Navigation Companies sent special trains to convey fire companies to the scene and the flames were subdued after the roof had been destroyed and the third story gutted. Thirty-eight patients were rescued.

Censorial District Meeting.—The sixth annual meeting of the Fifth Censorial District Medical Society was held at Waynesboro July 25, and the following officers were elected: president, Dr. J. Burns Amberson, Waynesboro; vice-president, Dr. Harry A. Spangler, Carlisle; secretary and treasurer, Dr. George E. Holtzapple, York. The next meeting will be held at Mount Holly Springs, in July, 1912.

Philadelphia

Personal.—Dr. Walter L. Pyle has recently returned from Europe.——Drs. John F. McCloskey and Fred Stahley were seriously injured when their automobile ran into a tree which had been blown across a drive in West Fairmount Park in a storm August 18.

Quarantine on Brandenburg Lifted.—Twenty-nine hours after quarantine had been placed on the steamer *Brandenburg* because of the illness of a passenger with symptoms suspiciously like cholera, the steamer and its passengers were released as cultures taken showed a negative result.

Hospital Sells Building.—The Methodist Hospital has sold 1015-17-19 Chestnut Street, a lot 69x180 feet, for a consideration reported to be $425,000. This building, together with the Chestnut Street Opera House adjoining, was bequeathed to the Methodist Hospital about 15 years ago by the will of Colonel Bennett.

Playground Work Ended.—The public school playgrounds, conducted in the yards of the public schools and under the direction of the board of education closed August 31. The grounds were open six days of the week for eight hours each day with at least a principal and a teacher in attendance. Beside healthful supervised play, instruction in small arts, such as basket weaving, hammock weaving, sewing, etc., was given. Hammocks almost without number were made and given to hospitals, recreation piers and municipal playgrounds in various parts of the city.

SOUTH DAKOTA

Personal.—Major Hans M. Finnerud, M. C., N. G., S. Dak., Watertown, has been made chief surgeon with the rank of colonel.——Dr. John R. Nilsson, Lead, who was operated on recently in Omaha, has recovered.

TENNESSEE

Commercial Men Form Health Association.—The Tennessee Commercial Men's Health Association, organized at Chattanooga August 14, with an initial membership of more than two hundred.

Physicians Victimized.—The police arrested in Chattanooga, August 26, a man giving his name as J. D. Cooper, who is said to have posed as a doctor and to have victimized several local physicians by inducing them to endorse his checks.

President to Lay Hospital Cornerstone.—Excavation for the Lincoln Memorial University Hospital, Knoxville, the cornerstone of which will be laid by President Taft, September 18, has been begun. The building will be four stories in height and will cost about $13,000.

TEXAS

Money for Hospital.—By the will of the late John W. Gates $150,000 is devised to the Mary Gates Memorial Hospital, Port Arthur.

Personal.—Dr. John O. McReynolds, Dallas, has returned from England.——Dr. Albert W. Nash, Dallas, has been appointed health officer of Nash, succeeding Thomas B. Fisher, resigned.——Dr. Albert Woldert, Tyler, sustained a heavy loss by the burning of a building owned by him in Plainview, August 22.——Dr. Joseph C. Darracott, San Antonio, for several years physician at the Schaefer Hospital, has resigned and will be located in Deming, New Mexico.

Two Tuberculosis Colonies.—The State Department Commission for the selections of sites, erection of building, etc., has made sufficient progress to insure the completion of at least one colony within the next year. It has purchased a tract of land on the Concho River near Carlsbad on which a colony will be established and the other is to be located at the old Fort Clark reservation. The specifications call for the establishment of a colony to cost about $50,000, and to accommodate at least sixty patients.

UTAH

Personal.—Dr. Elmer E. Hinckley, Provo, has returned from Europe and will practice in Salt Lake City.——Drs. Clarence M. Clarke, Provo; Albert G. Stoddard, Spanish Fork; Horace C. Holbrook, Lehi; Frank E. Winter, Payson, and Philemon M. Kelly, American Fork, have been appointed members of the board of health of Utah County.

WEST VIRGINIA

State Board Election.—At the annual meeting of the State Board of Health, Dr. Robert E. Vickers, Huntington, was elected president, and Dr. Hugh A. Barbee, Point Pleasant, was reelected secretary for the firth time.

Personal.—Dr. Albert E. Nolte has been appointed health officer of Wheeling, vice Dr. Charles A. Barlow, resigned to become superintendent of the State Hospital for the Insane, Spencer.——Drs. T. Jud McBee, Elkins, and Irvin Hardy, Davis, purchased the City Hospital, Morgantown, and will tear down the old building and erect a hospital on the site.

WISCONSIN

Improvements at State Sanatorium.—The state board of control, on August 25, awarded contracts amounting to nearly $10,000 for improvements at the State Tuberculosis Sanatorium, Wales.

Personal.—Dr. C. William Stoelting, Oconto, has recovered from his recent operation for appendicitis.——Dr. Howard D. Eaton, who has been practicing in Chihuahua, Mexico, for seven years has returned and located in Shopiere.

Sanatorium Agreement.—At a conference held August 23 between representatives of the county and city of Milwaukee to devise a method of cooperation in the fight against tuberculosis, an agreement was reached whereby the county will lease from the city the Greenfield Sanatorium at Wauwatosa. The institution is to be under the supervision of Dr. George H. Ernst, at present superintendent of the city tuberculosis institutions. New buildings are to be erected which will increase the capacity of the institution to 100.

GENERAL NEWS

Antityphoid Vaccination Compulsory.—By recent order of the Secretary of War, on recommendation of the surgeon general, antityphoid vaccination is made compulsory for all officers and men of the army under 45 years of age.

Rock Island Surgeons Meet.—The ninth annual meeting of the Surgical Association of the Rock Island Lines will be held in Colfax, Ia., September 13 and 14, under the presidency of Dr. Samuel C. Plummer, Chicago, chief surgeon of the system.

Pay of the Hospital Corps Increased.—The recommendation of the surgeon general of the army that the pay of non-commissioned officers of the Hospital Corps be advanced to the scale paid non-commissioned officers in other staff departments, has been approved by the general staff.

Mouth Hygiene Meeting.—At the meeting for organization of the National Mouth Hygiene Association, held in Cleveland, O., Dr. Eugene H. Porter, commissioner of health of New York City was made first vice-president; Dr. William A. Evans, former commissioner of health of Chicago, second vice-president, and Dr. Oscar Dowling of Shreveport, secretary of the Louisiana State Board of Health, third vice-president.

American Life Convention.—The medical section of the American Life Convention will hold its annual meeting in Pittsburgh, September 20, the day before the opening of the general convention. Among the papers announced to be read are "Transmission of Tuberculosis Through Fetal Life," by Dr. Harold C. Miller, medical director of the Pittsburgh Life and Trust Company; "The Healed Tuberculous Lesion from a Life Insurance Standpoint," by Dr. G. W. Parker, medical director of the Peoria (Ill.) Life Insurance Company; "Blood-Pressure," by Dr. Henry Wireman Cook, medical director of the Northwestern National Life Insurance Company, and "Nervous Diseases as Applied to Life Insurance" by Dr. John S. Turner, medical director of the Southland Life Insurance Company. Medical directors, examiners, actuaries and officials of life insurance companies are invited to attend this meeting and to participate in the discussion. Dr. Frank L. B. Jenney, Chicago, is secretary of the section.

International Manifestation in Honor of Sir Patrick Manson.—A committee has been organized to do honor to the one who has been so largely responsible for the progress realized in the knowledge of diseases of tropical countries, Sir Patrick Manson, the movement for the international manifestation having been started in France. The announcement states that the creation of schools or institutes of tropical medicine is also due to his initiative genius. It is proposed to present him with a portrait medal, in gold, the work of Dr. Paul Richer, professor of anatomy at the Beaux-Arts in Paris. Subscriptions may be sent to Asselin and Houzeau, publishers of the *Archives de Parasitologie*, place de l'Ecole de Médecine, Paris, France, or to Mr. James Cantlie, 140 Harley St., London, W., England. A bronze replica will be sent to each one who subscribes $5 and a silver one for twice this subscription or more. The forty-five members of the committee represent the leading countries of the globe; the list includes Drs. W. H. Welch, G. N. Calkins, F. G. Novy, C. W. Stiles and H. B. Ward of this country.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Aug. 26, 1911.

The Falling Birth-Rate

The lowest birth-rate on record has once more been reported. For the quarter ending June, 1911, the births were in the proportion of 25 per thousand of the population, which is 3 below the mean birth-rate in the preceding ten second quarters and the lowest recorded since the establishment of civil registration. The death-rate for the quarter was also unusually low—13.3 per thousand, which is 1.3 below the mean death-rate in the preceding second quarters. Infant mortality was in the proportion of 91 per thousand births under the age of one year. This is 15 below the average of the preceding ten quarters and is the same as that recorded in the second quarter of last year, which was the lowest recorded. The marriage rate also was unusually low—10 per thousand of the population against an average of 11.4 in the preceding 10 years.

The Antituberculosis Campaign

A movement is in progress for the establishment of tuberculosis dispensaries, of which there are a few in London and other parts of the country. One of the main features of the treatment is the administration of tuberculin. It is claimed that as the dispensaries receive the cases earlier than sanatoriums and their upkeep is much less expensive they are a better means of coping with the disease. Moreover, there is not sanatorium accommodation in the country for a tenth of the cases of tuberculosis. On the other hand, some question the excellent results which are claimed for the dispensaries. The diagnosis is often based on the reaction to tuberculin. But, as it has been shown that a large proportion of healthy soldiers react to tuberculin, the reality of the alleged cures is questioned. An appeal is now being made for $500,000 to establish tuberculosis dispensaries in London and the response has been encouraging. At the recent tuberculosis conference Mr. Waldorf Astor read a very important paper on the cost of tuberculosis. He showed that when the insurance scheme now before Parliament is fully developed some $50,000,000 will be spent every year on the sick. Of this over $15,000,000 will be required on account of tuberculosis alone. In Ireland, a country in which tuberculosis is very prevalent and in which the disease has shown no such decline as has been manifested in England in recent years, a gratifying improvement is at last apparent. The death rate from tuberculosis has fallen from 2.7 per 1,000 in 1907 to 2.6 in 1908, 2.4 in 1909, and 2.3 in 1910.

The Study of Pellagra

The second field commission for the investigation of pellagra has just left London for the Continent. It is composed of Dr. Louis Sambon, lecturer, London School of Tropical Medicine and parasitologist to the Wellcome Physiological Research Laboratories, and Dr. Albert T. Chalmers, lecturer on pathology and animal parasitology, Ceylon Medical College. These two members of the commission will be joined *en route* by Professor Haase, of Memphis, U. S. A., Dr. Cole, of Atlanta, U. S. A., and Dr. Martinez, of Yucatan, Mexico. The commission will proceed to the study of the epidemiology and etiology of pellagra in Hungary, the Austrian Tyrol, Spain, and the south of France. The governments of Austria-Hungary and of Spain have shown interest in the work and have granted every facility for prosecution of the study. Mr. H. S. Wellcome defrayed all the expenses of the present field commission. The work in Italy in the spring of 1910, by Dr. Louis Sambon, has gained many converts to the belief that pellagra is not due to eating damaged maize, but to a parasitic disease conveyed by the bite of a fly—a belief which has been seriously taken up by several observers, particularly in the United States. The field commission is to visit the pellagra-infected districts of Transylvania, the Austrian Tyrol, and the Asturias in Spain.

The Great Railway Strike

The railway strike which has happily ceased after a few days is an event unparalleled in our industrial warfare and threatened to produce quickly suffering of appalling magnitude. All the great railway lines in the kingdom, with one exception, were held up and the starvation of the great towns was only a matter of days. Another evil was the insanitary condition due to the impossibility of removing garbage. In Liverpool, where the greatest disorder occurred, the last difficulty was considerable and the death-rate was doubled. Even the hospitals had to complain to the Lord Mayor, stating that they would have to close their doors if the necessary supplies

were not allowed to pass through by the strikers. In London also some of the hospitals suffered great inconvenience and one had to curtail its work on account of shortage of supplies. One issue of the *British Medical Journal* had to be reduced in size as the necessary paper could not be obtained.

Epidemic of Cerebrospinal Meningitis

A serious outbreak of cerebrospinal meningitis has occurred in Devon and Cornwall; 30 cases scattered throughout various districts have been reported and fresh cases are occurring daily. Five deaths have already taken place.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Aug. 18, 1911.

The Heat Wave

The intense heat during the last weeks has claimed many human victims, a condition which to date has been known to us only from American newspapers. In Berlin and elsewhere in Germany deaths from sunstroke have been reported daily and also numerous deaths from drowning. Thus, in the province of Silesia, during the last three weeks not less than ninety-two persons drowned while bathing, and twenty-eight died from heatstroke.

Congress for Race Hygiene

Of the many congresses which have been held in Dresden this summer, during the International Hygiene Exhibition, the Congress for Race Hygiene had a special interest, as a special race hygiene section in the exhibition had been arranged by Professor von Gruber of Munich, who lectured at the congress. He made clear that for each new generation a considerable number of the individuals are failures and that only a few attained high physical and mental standards. If an elevation of the average human being could be accomplished, a bettering of human conditions could be produced. The last century was under the sway of the dogma that all men are born equal; this had led to an overvaluation of the environment. It is certain that the environment is sometimes of great importance to the development of the individual; this is shown, for instance, by the variation of plants induced by changes in the conditions of growth. As a whole, however, the improvement, the social reforms, cannot essentially improve the race, because such improvements cannot be inherited and because the environment can never develop in an individual any characteristic the germ of which was not implanted by heredity The environment can often suppress these inherited tendencies, but it cannot add anything to them. Much more important than the environment is the inherited complex of tendencies. Race hygiene is needed to promote the regeneration of the strong and to check that of the weaker elements.

The Swedish social economist, Professor Fahlbeck, attacked energetically the so-called neomalthusianism. He characterized the efforts to check the natural growth of the population as agitation for race-suicide.

Sick-Benefit for Mine Workers

Among the labor organizations, the Westphalian-Rhenish Mine Workers' Central Union occupies a remarkable position by reason of its large membership and its activities. The report for 1910 gives a membership of about 350,000. The total number of cases of disease entailing inability to work numbered about 212,000, as against 226,000 for 1909. In frequency, rheumatism of the muscles and joints stands first; diseases of the digestive organs come next; the number of cases of appendicitis increased from 459 to 500. The report says that "this higher figure can probably be explained by the fact that appendicitis is in the foreground of medical interest and essential improvement has been made in early diagnosis. It is improbable that the increasing number of these cases offers a support for the claims of the vegetarians to the effect that it is due to the increase in the consumption of meat." There were 704 fatal accidents due to the employment, including one case of gas poisoning. The number of injuries due to mechanical causes shows a continued increase, reaching the number of 57,179, as against 54,799 in the preceding year, but the number of deaths resulting from these accidents shows a considerable decrease, a fact undoubtedly due to the improvements in mining technic. The Bochum central organization has 800 branch offices and has two large hospitals, one for diseases of the lungs and one home for convalescents. During the year, 337 general practitioners and eighty-six specialists took care of the sick, and for the treatment of the sick members about $4,000,000 (16,400,000 marks) was expended, of which about $2,500,000 (9,700,000 marks) was paid as sick-benefit, about $800,000 (3,200,000 marks) was hospital expenses, about $350,000 (1,500,000 marks) for medicine, and about $500,000 (2,000,000 marks) as fees for physicians. This organization provides for sick-benefits and old age and invalid pensions. The income of these three departments amounted in 1910 to about $14,000,000 (56,100,000 marks), as compared to $13,500,000 in 1909, and the expenses were $10,000,000, as compared to $9,500,000 in 1909. The balance-sheet of the three departments totaled $43,000,000 (173,000,000 marks), as compared to $35,500,000 (150,000,000 marks) in 1909.

End-Results in the Treatment of Tuberculosis

The official insurance bureau of the Hansa cities (Lübeck, Bremen and Hamburg) has published a report of the results obtained in the thirty-three sanatoriums supported by this bureau. In this report a special interest is attached to the figures dealing with the ultimate outcome of the treatment of pulmonary tuberculosis. Of the 37 male patients treated in the sanatoriums during 1895, suffering from lung phthisis, 56 per cent. had died before the end of 1910; 8 per cent. were unable to work and 13 (36 per cent.) had full earning capacity, but three in this group had taken more than one course of treatment. Of the 19 female patients treated in 1895, 5 (28 per cent.) had died before the end of 1910; 5 per cent. were unable to work, and 12 (67 per cent.) were fully able to work. Two of the latter had taken repeated treatment. Of the 99 male patients treated during 1896, 33 (35 per cent.) had died; 5 (5 per cent.) were incapacitated; 52 (56 per cent) were fully able to work; of the latter, 17 (18 per cent.) had taken repeated treatment, and 4 (4 per cent.) were only partially able to work. Of the 47 female patients treated during the same year, 4 (9 per cent.) had died; 1 (2 per cent.) was unable to work; 30 (68 per cent.) were able to work, of whom 7 (16 per cent.) had taken repeated treatment; 9 (21 per cent.) were partially able to work. Of 164 male patients treated during 1900, 39 (25 per cent.) had died before the end of 1910; 12 (8 per cent.) were unable to work; 84 (53 per cent.) were fully able to work; of these, 23 (15 per cent.) had taken repeated treatment; 22 (14 per cent.) were only partially able to work. Of the 132 female patients, 15 (12 per cent.) had died; 11 (9 per cent.) were unable to work; 69 (57 per cent.) were able to work, of whom 24 (20 per cent.) had taken repeated treatment; 26 (22 per cent.) were partially able to work. From the standpoint of the ultimate outcome, it is important to note the causes of the disease in the individual patient. The cases are classified in four groups:

1. Slight infection, limited to a small area of one lobe, and especially to the apex.

2. Cases in which the infectious process exceeded the limitations of Group 1; involving one or both sides without any pronounced dulness or cavity formation.

3. Those showing consolidation of one or more lobes or signs of cavity formation, or pronounced tuberculosis of the larynx.

4. Protracted pleurisies or suspicious catarrh of the larynx without any pronounced findings in the lungs.

The total number of male patients belonging to Group 1 who were treated more than four weeks in the sanatoriums during the years 1895 to 1904 were 471, of whom 117 (25 per cent.) had died before the end of 1910; 25 (5 per cent.) were unable to work; 297 (63 per cent.) were fully able to work; 32 (7 per cent.) were partially able to work. Of the parallel group of 441 female patients, 48 (11 per cent.) had died; 26 (6 per cent.) were unable to work; 293 (66 per cent.) were fully able to work, and 74 (17 per cent.) were only partially able to work.

Of those belonging to Group 2, 461 were male patients, of whom 141 (31 per cent.) had died; 36 (8 per cent.) were unable to work; 240 (52 per cent.) were fully able to work, and 44 (9 per cent.) were partially able to work. Of the 227 female patients, 28 (12 per cent.) had died; 15 (7 per cent.) were incapacitated; 151 (66 per cent.) were fully able to work, and 33 (15 per cent.) were partially able to work.

In Group 3 were 107 male patients, of whom 70 (65 per cent.) had died; 8 (7 per cent.) were unable to work; 23 (22 per cent.) were fully able to work; 6 (6 per cent.) were only partially able to work. Of 34 female patients belonging to this group, 20 (59 per cent.) died; 4 (12 per cent.) were unable to work; 9 (26 per cent.) were fully and 1 (3 per cent.) only partially able to work. Group 4 offers no special interest.

The percentages of male patients who recovered so as to be able to work were in Groups 1, 2 and 3, respectively, 52.5, 42.4 and 4.1; for the women the proportions were 63.7, 32.8 and 2 per cent.

The influence of age, the duration of the disease before treatment and the heredity were also recorded. Of the male patients reexamined in 1910, 306 had been between 15 and 25 years of age; of these, 87 (28 per cent.) had died; 6 (2 per cent.) were unable to work; 194 (63 per cent.) were fully able to work, and 19 (7 per cent.) were partially able to work. In the parallel group of 483 female patients, 63 (13 per cent.) had died; 22 (4 per cent.) were unable to work; 332 (69 per cent.) were fully and 66 (14 per cent.) were partially able to work. Aged from 25 to 50 years were 698 male patients, of whom 217 (31 per cent.) had died; 55 (8 per cent) were unable to work; 364 (52 per cent.) were fully and 62 (9 per cent.) were partially able to work. In the parallel group of 226 female patients, 34 (15 per cent.) had died; 22 (10 per cent.) were unable to work; 128 (57 per cent.) were fully and 42 (18 per cent.) were partially able to work. The report of the patients over 50 years old offers no special interest.

The duration of the disease before treatment had been in 341 male cases from one to six months; of these patients 87 (25 per cent.) had died before the end of 1910; 17 (5 per cent.) were unable to work; 211 (62 per cent.) were fully able to work; 26 (7 per cent.) were partially able to work. Of the parallel group of 172 female patients, 20 (12 per cent.) had died; 4 (2 per cent.) were unable to work; 126 (73 per cent.) were fully and 22 (13 per cent.) were partially able to work. The duration of the disease in 344 male patients had been from six to twenty-four months; of these patients 115 (33 per cent.) had died; 16 (5 per cent.) were unable to work; 191 (56 per cent.) were fully and 22 (6 per cent.) were partially able to work. In a parallel group of 238 female patients, 33 (14 per cent.) had died; 21 (9 per cent.) were unable to work; 147 (62 per cent.) were fully and 37 (15 per cent.) were partially able to work. In 234 male patients the duration of the disease before treatment was from two to six years; of these patients, 82 (35 per cent.) had died; 24 (10 per cent.) were unable to work; 103 (44 per cent.) were fully able to work, and 25 (11 per cent.) were partially able to work. In a parallel group of 187 female patients, 26 (14 per cent.) had died; 8 (4 per cent.) were unable to work; 119 (64 per cent.) were fully able to work, and 34 (18 per cent.) were partially able to work. About the same percentages are evident with patients who had had the disease from six to twelve years before treatment. From this it can be concluded that long duration does not necessarily mean a less favorable prognosis.

An inherited taint had been noted in 274 male patients, of whom 86 (31 per cent.) had died; 19 (7 per cent.) were unable to work; 147 (54 per cent.) were fully and 22 (8 per cent.) partially able to work. In a parallel group of 303 female patients, 42 (14 per cent.) had died; 23 (8 per cent.) were unable to work; 192 (63 per cent.) were fully and 46 (15 per cent.) were partially able to work. No inherited taint could be traced in 656 male patients, of whom 193 (29 per cent.) had died; 38 (6 per cent.) were unable to work; 374 (57 per cent.) were fully and 51 (8 per cent.) were partially able to work. In a parallel group of 270 female patients, 48 (13 per cent.) had died; 19 (5 per cent.) were unable to work; 244 (66 per cent.) were fully able to work, and 59 (16 per cent.) were partially able to work. These figures seem to prove that the so-called inherited taint does not necessarily entail a special lack of resistance to tuberculosis. Such persons do not succumb to it any more readily than those free from such heredity.

Centenary of the University of Breslau

On August 1 and 2 was celebrated the centenary of the founding of the University of Breslau. One year after the founding of the University of Berlin, the University of Frankfort on the Oder, which was only a few miles from Berlin, moved to Breslau on account of the rapid growth of the Berlin institution and the competition it involved. Although the University of Breslau, like the University of Berlin, was founded at a time when Prussia was depressed by the Napoleonic wars, this former institution also was soon to make a remarkable progress, and especially in the medical faculty there developed a school rich in research and important teachings. During these hundred years many prominent men, who have made valuable contributions to medicine, have held positions in the Breslau medical faculty. Among these may be mentioned the physiologists Purkinje and Heidenhain, the internists Frerichs, Biermer and Kast, the surgeons Middeldorpf and Mikulicz, the gynecologist Spiegelberg, the pathologic anatomists Cohnheim and Ponfick, the ophthalmologist Foerster, the neurologist Wernicke, and Haeser the professor of history of medicine. As is well known, it was to the famous botanist of Breslau, Ferdinand Cohn, that Robert Koch submitted his first culture of the anthrax bacillus; Koch intended at one time to take up residence in Breslau but gave up the idea for material reasons. On the occasion of the centenary, several professors of other faculties and many especially meritorious men were created honorary doctors by the medical faculty. Ehrlich, who is a Silesian by birth, also received an honorary degree from the philosophical department (equivalent to our arts and sciences department).

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, Aug. 21, 1911.

Diseases of Household Servants in Comparison with Other Workers

At present, a union of household servants is in preparation in this country. One of the earliest results of the movement is the information obtained in regard to the distribution of disease among this part of the population. Hitherto, the conditions have been regarded by some as favorable, while others thought them very bad. Altogether, only few such investigations and investigators were known. Certain affections are very frequent. Thus in Vienna, anemia, disorders of the stomach, rheumatism and troubles of the sexual organs are the most frequent, in the order mentioned. Anemia is readily explained by the long stay in badly ventilated rooms and the rare walks in fresh air, as well as by the insufficient amount of sleep; sometimes the quantity of food is insufficient. Cooks suffer in their stomachs because of too frequent tasting of the foods they are preparing. Rheumatic affections are very common among all servants, partly on account of the frequent exposure to cold and bad weather, without sufficient protection, partly from working in unhealthy kitchens, washing kitchens and sculleries. A frequent complaint of servants is static flat-foot with varicose veins of the legs. Affections of the lungs are less frequent than one would expect in Vienna. It seems that the inherited constitutions of the servants—mostly daughters of the healthy rural districts—protect them to a great extent; their health statistics are much better than those of, for instance, shop assistants, typewriters and office girls. The reports of the Vienna Krankenkasse concerning the latter group show that within one year more than 13 per cent. of the members have suffered from affections of the respiratory organs, lasting more than three days, while for house servants the figures are found to be about half of that. The alimentary canal was affected in 9 per cent. of the latter, while in 11 per cent. of the shop and office girls, the conditions of nourishment were also decidedly in favor of the house servants. Worst off is the factory girl, who not only is often underfed but is also exposed to much more danger of physical and moral nature. Illegitimate births are most frequent among this class of workers; the house servants come next in this respect, while the third group only rarely contributes to this item. A remarkable fact is the relative frequency of nervous diseases and neurasthenia, or rather hysteria, among the housemaids; one would not suppose that fully 2 per cent. of all the servants in this group are classified as victims of such diseases. Surgical diseases, except panaritium, bursitis patellaris and dental periostitis, are not frequent among servants, while the factory girls are prone to various factory accidents.

Opposition to Tuberculosis Sanatoriums

The munificence of a wealthy philanthropist has placed at the disposal of the Society for the Care of Tuberculous Patients the necessary funds for erecting, at various places, sanatoriums for tuberculous persons capable of recovery. One of these institutions devoted to the treatment of children, in the incipient stage of the disease, was to be built at Semmering, the well-known health resort in the mountains south of Vienna. Against this project a vehement opposition has arisen, mostly from the owners of other sanatoriums at Semmering, as well as from other persons who ought to know better. It was spread broadcast that such an institution would be a menace to the health of the villagers and other inhabitants of the famous mountain-range, and even the municipality of Vienna protested against the erection of such a sanatorium there, because it would "spoil the air and no longer offer the strangers and tourists a pleasant recreation ground." In vain, the medical men pointed out that the danger of infection did not exist, that the presence of such

institutions is an urgent necessity for the national welfare and health; the interests affected by the plan were more powerful than any other consideration, and the philanthropist has been forced to reconsider his generous offer. It is probable that he will also have to cancel some other plans. This loss to public welfare will not be compensated quickly.

A Home for the Vienna Medical Organizations

Apart from the Gesellschaft der Aerzte, no medical organization of this city owns its own home, but all, even the official medical council, have rented flats so that their abodes lack freedom from the whims of landlords and houseowners. It has recently been suggested that a home for all the official, scientific, provident and social organizations and bodies of the profession in this city should be erected. The necessary funds will readily be obtained and the cost of maintenance will be divided among the various bodies. The principal organizations affected by this plan are: the council, the doctors' orchestra, the sick-benefit society, the widows and orphans' society, the economic organization the Doctoren Collegium (a provident society of very considerable means and influence), five scientific medical societies, and also several provident societies in the country districts. It is most likely that a centralization of offices will pave the way for the unification of the societies which, no doubt, would prove a most welcome money-saving proposition, and a strong movement in this direction is manifest. Whatever the result of this movement might be, it is sure that a "doctors' house" is an urgent necessity for us here, not least from an ethical point of view, as an exponent of medical concord.

Spread of Cholera

Cholera is gradually spreading in the southern part of Austria and its hinterland, and sporadic cases appear also in distant places. In Vienna a woman died from it after an illness of four days and there was no clue to indicate the mode of infection in this particular case, in spite of all researches. The army medical corps has been warned to be on the lookout in the affected districts, and maneuvers have been postponed or given up for the same reason. At any rate the public health officers assert that they control the attack and the population is by no means excited or frightened.

Personal

Professor H. Schloffer, who for several years was chief of the surgical clinic in Innsbruck, has been appointed to the equivalent position in Prague (German university).

Professor W. Trendelenburg of Freiburg has been appointed to Innsbruck, as professor of physiology, and Professor Kucera has become extraordinary professor in the University of Lemberg where he will deliver his lectures on hygiene.

Medical Strike in Hungary

The physicians of the workingmen's club in upper Hungary have refused to do any work on the old terms for the club. Physicians from twenty-five other districts joined their colleagues, so that the club had to come to terms with the practitioners at last. This is the first successful medical strike on a large scale in Hungary.

Difference in Intuitive Powers.—G. A. Auden (*Jour. Crim. Law and Criminology*) says that the study of mental defect has taught us that there are some individuals in whom the power of forming a concept from the letter symbols, by which we express words, is lacking (i. e., who are "word-blind"), who are, however, capable of forming correct mathematical concepts from the symbols by which we denote number. There are others in whom the reverse defect is found. These can read fluently, yet they cannot grasp the fact that 3 plus 3 equal 6, because they cannot form a concept of number. We find similarly word-deaf persons and color-blind persons. (There are some grounds for believing that color-blindness is, in part at any rate, central rather than peripheral in origin.) In the same way some of us have no ear to recognize the rhythm of sound which we designate as "tune;" others have a deficient sense of position, and, to use a phrase borrowed from the phrenologist, have no "bump of locality." Indeed such facts as these seem to show that all these faculties are developed in varying degrees in each individual. It seems, therefore, reasonable and logical to regard the capacity of forming a moral concept as analogous, and to believe that this faculty may show all stages of development or be absent.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

THE CHARGE AGAINST DR. WILEY

Extracts From the Testimony Given Before the Congressional Committee

[The charge against Dr. Wiley was nominally formulated by the committee on personnel, composed of Solicitor McCabe, W. M. Hays and C. C. Clark. While most of the charges were actually brought against Drs. H. H. Rusby, L. F. Kebler and W. D. Bigelow, it was made to appear that Dr. Wiley, as Chief of the Bureau of Chemistry, was the individual chiefly concerned. The only actual charge against Dr. Wiley was that he, with Dr. Bigelow, had entered into a secret agreement with Dr. Rusby regarding the rate of compensation that the latter should receive from the government. The committee on personnel submitted a long report to Secretary Wilson, from which we quote a small portion. The part quoted constitutes the whole of the evidence submitted by this committee to prove its contention that Dr. Wiley had entered into a secret agreement with Dr. Rusby. The matter follows:]

THE BASIS OF THE CHARGE

"On January 23, 1911, Dr. Rusby informed Dr. Wiley that he had agreed with Dr. Bigelow, as being fair and satisfactory, upon the following agreement:

"'This agreement provides that my salary shall amount to $2,000 per year, conditional upon my doing 100 days of seven and one-half hours each. It is understood that if the amount of service should not reach that number of days there would be a pro rata reduction in my compensation.' (Rusby to Wiley, Jan. 23, 1911, E-94.)"

THE CHARGE ANALYZED

[In investigating this point, the following testimony was given by Dr. Wiley before the committee:]

Mr. Floyd: On page 176 of the hearings of July 28, I notice there is a heading: "Facts not controverted"; and on page 177, near the middle of the page, is this statement:

"Further in a letter of Jan. 23, 1911, to Dr. Wiley, Dr. Rusby states that an agreement had been reached between himself and Dr. Bigelow that his salary should amount to $2,000 per year, with the understanding that he did 100 days' work."

I want to ask you the direct question whether you did or did not enter into any contract with Dr. Rusby whereby he should receive $2,000 for 100 days' work, or any number of days' work?

Dr. Wiley: I did not.

Mr. Floyd: What about that letter? It says that in a letter—

Dr. Wiley: That letter was never sent to me. I never saw it nor heard of it until it was published in these proceedings.

Mr. Floyd: Had you received it at all?

Dr. Wiley: I never had it. It never came to me.

Mr. Davis: The letter in full appears on page 154.

Mr. Floyd: Have you since seen that letter?

Dr. Wiley: Yes, sir; I have seen it published.

Mr. Floyd: The statement that I read would indicate that that was brought to your knowledge, and was an undisputed fact in the case.

Dr. Wiley: Yes, sir. That is false. It was not brought to my knowledge, and I did not know anything about it.

Mr. Floyd: Have you since seen that letter?

Dr. Wiley: Yes, sir.

* * *

Mr. Floyd:—What is your explanation, Doctor, if you have any to make, in regard to that letter?

Dr. Wiley: Dr. Rusby explains it himself on page 185, at the top of the page. In a letter addressed to the Secretary of Agriculture, under date of July 13, 1911, he says:

"I desire to say to you that my letter of Jan. 23, 1911, addressed to Dr. Wiley, was never sent to him, nor, so far as I know, did he ever know that it had been written, until it came out at the hearing. After writing this letter I learned that Dr. Wiley was absent from Washington, and that the letter, if sent, would not reach him. I therefore did not send it, but the copy got into my files, and when you later asked me to send all correspondence bearing on this subject I sent this copy, forgetting that the original had never been sent to Dr. Wiley."

Mr. Floyd: That letter is addressed to Secretary Wilson?
Dr. Wiley: Yes, sir.
Mr. Floyd: Of date of July 13, 1911?
Dr. Wiley: Yes, sir; and it is quoted from on page 178, omitting that part of it which is most important, viz.: that the agreement would not be valid until approved by the department.
Mr. Davis: Page 177.
Dr. Wiley: It is quoted on page 178, in quotations, near the top of the page—the third paragraph. A quotation is made from this letter omitting the first paragraph, which says that "this agreement is not valid until approved by the department"—thus showing that Dr. Rusby had no idea of any secret agreement, and that I had not any idea and never knew that this agreement had been made at all. The committee on personnel knew that I had never seen this letter, because I sent to them a complete list of letters which I had received, and stated that I had never received any personal letter from Dr. Rusby on this subject.
Mr. Higgins: You had no knowledge that this contract was made, then, Doctor?
Dr. Wiley: Absolutely none; and it never was made—no contract of any kind. He says that an agreement was reached with Dr. Bigelow that he would work for that, if approved by the department; not under any other conditions.
Mr. Higgins: But you had no knowledge of these negotiations with Dr. Rusby to get his services as an expert investigator?
Dr. Wiley: I did not have any knowledge at all of them. I asked Dr. Bigelow to find out from Dr. Rusby the smallest salary he would work for, on an annual salary. That is all I asked him to do. I did not know any means by which they reached the $2,000.
Mr. Higgins: You had no knowledge or information about the matter of the exchange of letters, and consultations?
Dr. Wiley: I know they exchanged letters, and Dr. Bigelow came to me from time to time.
Mr. Higgins: But you did not know what they contained?
Dr. Wiley: I did not know what they contained. I never saw the letters.
Mr. Floyd: And you had no correspondence yourself?
Dr. Wiley: I had not a word of correspondence of any kind with Dr. Rusby on this subject.
Mr. Floyd: The letter from which they quote on page 177 and page 178 is a letter of January 23, 1911, which reads as follows:
Dr. Wiley: Which was not sent—which I never received.
Mr. Floyd (reading):

Dr. H. W. Wiley,
Chief Bureau of Chemistry, Washington, D. C.

Dear Sir: As a result of considerable discussion and correspondence with Dr. Bigelow regarding some change in the compensation allowed me as pharmacognosist which would make it possible for me to continue in the service, we have agreed upon the following arrangement as being fair and satisfactory, IF APPROVED BY THE DEPARTMENT.

Dr. Wiley: Yes, sir.
Mr. Floyd (reading):

This agreement provides that my salary shall amount to $2,000 per year, conditional upon my doing 100 days of 7½ hours each. It is understood that if the amount of service should not reach that number of days there would be a pro rata reduction in my compensation.

Trusting that this will be satisfactory to everyone concerned,
Very truly yours,

Dr. Wiley: And I should like to say, Mr. Floyd, that any connection I may have had with this alleged contract is based solely on that undelivered letter, which I had never seen, and on a partial quotation from it. There is not a scintilla of other evidence in this hearing that connects me with any such contract in any way.
Mr. Floyd: Did you have any correspondence with Dr. Rusby about this contract?
Dr. Wiley: Not a word; not a word on this subject.
Mr. Floyd: And you had received no letter whatsoever from him?
Dr. Wiley: Never, on this subject.
Mr. Floyd: On this subject; and the letter which they quote from was an unsigned letter, written by Dr. Rusby, but never delivered to you?
Dr. Wiley: Never sent out of his house until he brought it down himself.
Mr. Floyd: And he brought it in response to a call of this personnel board for all correspondence.
Dr. Wiley: Yes, sir. I have here a list of all the letters he sent—all the letters I have ever had from Dr. Rusby—which I sent to this personnel committee.

DR. WILEY CROSSEXAMINED

[The committee on personnel called Dr. Wiley and his associates before them and subjected them to a severe cross-examination. In discussing this investigation the following facts were brought out:]

Mr. Floyd: Did they state to you in that investigation what the charges were against you?
Dr. Wiley: No, sir.
Mr. Floyd: Did you know that any charges were made against you?
Dr. Wiley: I did not.
Mr. Floyd: They did not inform you that they were investigating charges against you?
Dr. Wiley: No, sir.
Mr. Floyd: Did you understand from your appearance there, and the questions asked, what the proceeding was or what it meant?
Dr. Wiley: No, sir; but before they got through I had my suspicions. In the first place, it was held secretly. Every other person had to leave the room. I did not like that. I considered that an insult to me.
Mr. Floyd: When you testified, no other person was allowed in the room?
Dr. Wiley: Then, before they got through, I thought there was something wrong; and so the next day I addressed a letter to Mr. Hays to find out and ask him specifically if there were any charges preferred against me or any member of my bureau. This letter read as follows:
Mr. Floyd: Just read that letter. I should like to hear it.
Dr. Wiley (reading):

HON. WILLETT M. HAYS,
Assistant Secretary of Agriculture.

Dear Sir: I would be very glad if you would furnish me with a copy of any charges, or a summary of charges, presented to the Secretary of Agriculture or to the board of personnel respecting the attitude of the Chief of the Bureau of Chemistry, in regard to the appointment of Dr. H. H. Rusby as an expert pharmacognosist, or to any changes in his title or rate of compensation. Reference was made at the beginning of the hearing on Thursday, April 20, to a certain paper summarizing the charges, but I have not seen that paper nor have I been furnished with a copy. I think it is only just to my bureau to know what charges have been made, if any have been made, and by whom they were made.

Respectfully,
H. W. WILEY, *Chief.*

I will also read Mr. Hays' reply, dated April 24. (Reading:)

DR. H. W. WILEY, April 24, 1911.
Chief Bureau of Chemistry.

Dear Sir: Referring to your letter of the 22d instant, requesting that you be furnished "with copy of any charges, or a summary of charges, presented to the Secretary of Agriculture or to the board of personnel respecting the attitude of the Chief of the Bureau of Chemistry, or any of the employees of the Bureau of Chemistry, in regard to the appointment of Dr. H. H. Rusby," etc., I beg to advise you that the matter has not been presented to the committee on personnel, in the form of charges. Under date of March 28, Dr. F. L. Dunlap, as acting chief of the Bureau of Chemistry, transmitted a memorandum to the Secretary, with certain exhibits, in relation to the matter referred to. This memorandum and papers were referred by the Secretary to the committee on personnel for investigation and report. In compliance with your request, I have had copies of this memorandum and accompanying papers made, and am forwarding them to you herewith. I am also sending a copy of the stenographic report of the hearing before the committee on personnel on April 20, 1911, at which you and Drs. Bigelow, Kebler and Rusby appeared.

Should you or Drs. Bigelow, Kebler or Rusby desire to submit any further statement in regard to the matters referred to in the papers forwarded, I would thank you to let me have them in writing for the committee on personnel by Friday morning, April 28.

Respectfully,
W. M. HAYS, *Assistant Secretary.*

Mr. Davis: Those letters, I may say, are already in the record at pages 159 and 160, marked "F-108" and "F-109." They have already been printed.

Mr. Floyd: You received the opinion and recommendations of the personnel board, did you, in that letter?

Dr. Wiley: No; there was no other opinion in that letter except that.

Mr. Floyd: But did they afterwards send you the proceedings, with their findings?

Dr. Wiley: The hearings, yes; a copy of the hearings.

Mr. Floyd: Did they enclose you the recommendations of the personnel board?

Dr. Wiley: No; not then. I did not get those until two months or more later.

Mr. Floyd: Two months or more later?

Dr. Wiley: Yes. I got them, I think, on the 7th of July.

Mr. Floyd: You got a copy of the recommendations of the personnel board on the 7th of July—two months after that?

Dr. Wiley: Yes; in which they kindly offered me the opportunity to resign my position. Yes; I got that. I am much obliged to them for their courtesy.

Mr. Floyd: Did you receive them before they had been transmitted to the President, or afterwards?

Dr. Wiley: Afterwards; after they had been to the Attorney General.

Mr. Floyd: And to give force to that recommendation it was also accompanied by the opinion of the Attorney General, in which he also kindly gave you permission to resign, did he not?

Dr. Wiley: I will not express any opinion about the Attorney General.

THE POWER OF THE GLUCOSE TRUST

[The peculiarly powerful influence that certain large manufacturing interests exert at Washington was brought out in Dr. Wiley's testimony in connection with the Corn Products Co., commonly known as the "glucose trust." As THE JOURNAL has frequently pointed out, the use of the term "corn syrup" as a synonym for glucose is a direct imposition on the public: first, because "corn syrup" is not a syrup in the common acceptance of the term, and second, because people who are unwilling to buy glucose under its own name should not have it palmed off on them under a euphemistic and misleading name. Dr. Wiley has always maintained that glucose should be labeled glucose, but, as the following testimony brings out, he was overruled by mysterious influences brought to bear at Washington:]

Mr. Higgins: The opportunity was open, Doctor, for an appeal to the Secretary from the findings of the board?

Dr. Wiley: A great many times the interests affected did appeal to the Secretary.

Mr. Higgins: In such cases were they given a hearing?

Dr. Wiley: Yes; they were often given a hearing after the board had come to a decision and the Secretary had approved the decision of the board. One case particularly I have in view where the interests were given a hearing after the board had considered their action, the question of "corn syrup" as a proper label for glucose. The board, after giving a hearing to the parties interested and considering all the evidence, came to a decision, which was very grateful to me, because it was my opinion from the first that the term "corn syrup" was deceptive, and was used only to induce people to buy glucose who would not buy it if it were labeled "glucose," and all the board joined in that decision; it was approved by the Secretary of Agriculture and was sent to the printer and was in galley proof.

Dr. Wiley: At the time that decision was made the chairman of the board (myself) wrote a letter to the president of the Corn Products Co., Mr. E. T. Bedford, informing him of the action that had been taken. After the decision was actually approved an order was issued to suspend its publication—in fact, it was never published—but an exactly contrary decision was subsequently published by the three secretaries as a regulation under the Food and Drugs Act. I know from my own personal knowledge that the Corn Products Co. was very busy; they secured certificates from about thirty prominent chemists of this country, one of whom was afterwards a member of the referee board, to the effect that "corn syrup" was a proper term, and in one case at least I know that money was offered for this opinion to an eminent chemist, who declined to receive it, but informed me of the fact that he had been offered payment to render such an opinion.

Mr. Higgins: You do not mean to say that anybody in the government service was offered money?

Dr. Wiley: No; none of these chemists were in the government service. When I found out this was going on I wrote to all the chemists who were charged with the enforcement of the Food and Drugs Act of the United States, in the various states, and I put the question up to them whether, in the opinion of the food and drug chemists, "corn syrup" was a proper name for glucose, and everyone answered in the negative. They were not offered any money for their opinion by me and I do not suppose by anyone else—

Mr. Higgins: You think, then, experts are sometimes influenced by the size of their fee?

Dr. Wiley: No; I do not say that. I said that in this case one set of experts were offered money and others were not; that is all I said. When Mr. Bedford found out I had applied to the state chemists, he protested to the Secretary of Agriculture against my doing so.

Mr. Floyd: Who did so?

Dr. Wiley: Mr. Bedford, the president of the Corn Products Co.

Mr. Higgins: Protested to whom?

Dr. Wiley: To the Secretary of Agriculture. The Secretary of Agriculture sent me a telegram from Mr. Bedford and asked me to tell him what I had done, and I submitted to him a copy of the questions that I had submitted to the state chemists charged with the enforcement of the Food and Drugs Act. At the same time I prepared a brief on the question, which to my mind was a pretty good piece of work. This brief was furnished to the Corn Products Co., but Mr. Emery, of Wisconsin, the state food commissioner, had the greatest difficulty in getting a copy of it. Finally, I believe he had to apply to a member of Congress to get a copy, and I think he succeeded in getting a copy. He sided with me in this matter, and he had a suit on in his state, for he had ruled that "corn syrup" was not a proper name for glucose, and he wanted my brief, and he finally got it. You can find out from Mr. Emery how much trouble he had in getting it.

Mr. Higgins: He did not have any trouble in getting it after he applied to a member of Congress, did he?

Dr. Wiley: I don't know about that. I know that he finally applied to a member of Congress. The suit was continued in Wisconsin and the lower court rendered a verdict in favor of Mr. Emery; the case was appealed to the Supreme Court and the Supreme Court sustained the verdict that "corn syrup" was not a proper name for glucose, and gave some of the reasons which I had put forward in my brief.

The point I wish to bring out is this, that after the Board of Food and Drug Inspection had come to a decision—after each member of the board had approved it; after the Secretary had approved it and it was in print—it was withdrawn and an entirely different opinion, signed by the three secretaries, was substituted in its place.

Mr. Higgins: Did that remain as the regulation of the department until the Supreme Court reversed it?

Dr. Wiley: It still remains as the ruling and as the law.

WILEY FAVORS THE CONSUMER

[As indicating Dr. Wiley's attitude in all cases affecting the public health and also as showing how he and his associates were hampered in their attempt to make the Food and Drugs Act an instrument of public safety, the following testimony is both interesting and instructive:]

Mr. Davis: The solicitor [McCabe] in the course of his testimony and also in the course of certain of his correspondence, which has been produced before the committee, made some allusion to the fewness of cases affecting the public health that had been before the Board of Food and Drug Inspection and the Bureau of Chemistry. Do you wish to say anything about it?

Dr. Wiley: Yes; I would like to make a statement in that connection. There have been comparatively few cases which you could say directly affected the public health brought to the courts for the reason that the Bureau of Chemistry, under its constitution and regulation, obeys without question the orders of its superior officers, and having been advised, that is, the Bureau of Chemistry having been advised that the use of benzoate of soda in any quantity whatever was harmless, and having been advised that the use of saccharin and the use of sulphurous acid and the use of alum and the use of the other things referred to the referee board were not to be acted upon until the referee board reported, the Bureau of Chemistry was estopped from reporting hundreds and many hundreds—and I may say thousands—of cases of adulteration which it would have done had it been left to its own judgment in the matter.

Mr. Davis: So that as respects benzoate of soda and benzoic acid the ruling of the referee board cut out from the Bureau of Chemistry the consideration of the preservatives, so called, in this connection?

Dr. Wiley: As adulterants and as being injurious to health, yes, sir; absolutely. We have no authority, Mr. Chairman, to pronounce judgment on these cases which we believed were threatening the public health and were adulterations of the worst type.

Mr. Davis: And as respects alum, for instance, and those other questions referred to the referee board upon which action has not yet been taken, your hands are tied until action by the referee board?

Dr. Wiley: We are absolutely paralyzed.

Mr. Davis: I understood you yesterday to say, at least I think it was yesterday or the day before, that as respects alum you endeavored with your colleagues—or was it another substance?

Dr. Wiley: No; alum.

Mr. Davis: I think as respects alum you endeavored with your colleagues to get an understanding that, until the referee board should pass upon the harmfulness or otherwise of that article, prosecutions should be had in the interest of the public health?

Dr. Wiley: I did.

Mr. Davis: And without success?

Dr. Wiley: My only motive, and that which has guided me in every case which I have considered under the Food and Drugs Act, is to give every doubt to the consumer, and I hold that when experts disagree about the harmfulness of these bodies and the matter is referred to a final arbitrating board that the interests of the public health require that these bodies shall be excluded from foods until the board has reported. I think that is the least duty we can do to the public, and that is the duty I have always endeavored to do.

[Next week additional testimony will be published.]

Miscellany

Call of Scientific Age.—The call of the age to health is a call to sacrifice and to service, both personal and public; and the call to service has been the deepening undertone of the call to humanism, all along the ages. Sophocles, in his day, urged it on the Athenians, and Œdipus seizes on public service for his final passionate appeal to the prophet Teiresias for aid against the plague with which the land was cursed: "For in thee is our hope; and a man's noblest task is to help others, by his best means and powers." Our modern cynics may smile at the inconsistency of an age like our own which is constantly preaching the gospel of efficiency, and yet suffers grievously from bad domestic service and bad municipal service; but physicians, at least, do not need to be told that it is one thing to prescribe for a patient and quite another to persuade that patient to follow good advice. The call to life, and to life in this world, is thus the first and fundamental call of the scientific age. And the next is the call to health, i. e., to wholesome and fulness of normal life. It is not merely that we may have life, but that we may have it more abundantly. The first and chief characteristic of science is that it seeks always after Nature, after the normal, i. e., the natural, and looks askance on the abnormal and the super- or subnormal. Hence the call of a scientific age for normal, natural life and healthy living; hence its disapproval of disease, hence its disgust with dirt as a cause of disease, and its belief in public health as well as private welfare.—Sedgwick.

Standard Death-Rates.—Symptoms are abnormal manifestations of life. For example: The average pulse is about 72 beats per minute, and a pulse much over or under that average is abnormal or unusual, and, as a rule, indicates trouble. As with the pulse, so with the other phenomena of life; the average and the normal are nearly always the same. Just as there is an average pulse, an average number of respirations, an average consumption of food, an average amount of waste thrown off, all of which constitute what we regard as the normal, so there is an average number of deaths per year for a given population, an average number of deaths from typhoid, from tuberculosis and other diseases, which constitute normal standards for estimating health or disease conditions in a given community, town or state. Before one can recognize the abnormal he must be familiar with the normal, and before one is prepared to recognize symptoms of disease politic, he must know the average total death-rate and the average death-rate for the different diseases that obtain in a large population. Such death-rates have been collected and tabulated by the more progressive states that have recognized the value of keeping an account with death, so that from a large collection of authoritative statistics, we can find the normal or average death-rate for all diseases combined, or for any particular disease. Fifty-five per cent., or 48,000,000 of the population of the United States, are within the jurisdiction of rigidly enforced registration laws which supply the following statistics: Average annual death-rate from all diseases is 15 per 1,000; death-rate from tuberculosis, 1,675 per 100,000; for typhoid fever, 22 per 100,000; for whooping-cough, 11 per 100,000; measles, 10.2 per 100,000; and for malaria, 2.5 per 1000,000.—W. S. Rankin in *Bull. North Carolina Board of Health.*

Professional and Public Aspect of the Pneumonia Question.—As a plan of procedure in the prevention of the spread of pneumonia, W. J. White suggests (*Dominion Medical Monthly*, August), first of all, the proper segregation of pneumonia patients and their utensils in hospitals; cleaning by sprays and washes of the nose and throat of all who nurse and come in contact with these patients; careful hand washing of nurses and attendants after handling; careful destruction of sputum and other discharges; sterilization of linen of patients; fumigation of rooms after occupancy; and the use of gauze, which can be burned, instead of handkerchiefs. He would also have attached to dispensaries certain nurses who have received special instruction on nursing and preventing the spread of pneumonia, to be sent to all pneumonia cases in home nursing work. He recommends reporting all cases to the health department governing the district where the disease exists, and fumigation of the quarters in which the disease has occurred by the department after the death or recovery of the patient. Finally, the instruction of the public by pamphlets and school lectures on the necessity for keeping the nose and throat clean, especially during winter months; the necessity for controlling the dust of streets by better sprinkling and night sweeping; the evils of bad ventilation in house, public building and school; of alcohol; of badly cooked and poor food; of lack of rest; of worry; of the handkerchief; of the bearing of spitting on pneumonia as well as other diseases; of the increased resistance generated by open-air sleeping; and similar knowledge.

Marriages

CALVERT N. DEFOREST, U. S. P. H. & M.-H. Service, Libau, Russia, to Miss Mabelle V. Taylor of Hoboken, N. J., April 19.

EDWIN G. KYTE, M.D., Martinsville, Ind., to Miss Cora Simms, of Shelbyville, Ind., at Indianapolis, August 26.

CHESTER A. WHITMER, M.D., West Chester, Pa., to Miss Margaret Shafer, at Hagerstown, Md., August 22.

VALENTINE VINCENT BOURKE, M.D., East New York, N. Y., to Miss Edith Johnston of Brooklyn, August 15.

JAMES ALEXANDER KINNEAR, M.D., Toronto, to Miss Katherine Oswald Laing of Essex, Ont., August 24.

LEONARD LUCIUS LAMB, M.D., Chatsworth, Ill., to Miss Gertrude Snevely of Monon, Ind., August 30.

JOHN LYTE RESSLER, M.D., Bird-in-Hand, Pa., to Miss Elizabeth Staub of Millersville, Pa., recently.

MARTIN H. MAYFIELD, M.D., Hollis, Okla., to Mrs. Mattie Jackson of Springfield, Mo., August 24.

CHARLES WYCHE, M.D., Kirkwood, Mo., to Miss Miriam G. Crosby of West Line, Mo., August 24.

MURDOCK M. KERR, M.D., Calumet, Mich., to Miss Antoinette Priest of Evart, Mich., recently.

Deaths

Brigadier General Charles Ravenscroft Greenleaf, M. C., U. S. Army, retired, a surgeon of brilliant attainments, died at his home in San Jose, Cal., September 3, aged 73.

He was born in Carlisle, Pa., and was graduated from the Medical College of Ohio, Cincinnati, in 1860. At the outbreak of the Civil War he entered the volunteer service as assistant surgeon of the Fifth Ohio Infantry. Four months later he entered the regular establishment, received the grade of captain in 1866, that of major in 1876; was made lieutenant-colonel in 1891, colonel in 1896, was retired in 1902, for age, and was promoted to brigadier general (retired) in 1904.

General Greenleaf's service included the construction and administration of the Mower Hospital, Chestnut Hill, Philadelphia, said to have been the largest military hospital in the world, containing 5,000 beds. After the close of the Civil War he was in the ordinary frontier and garrison service until 1887, when he was ordered for duty in the office of the surgeon general, where he remained until 1893. From this time until the Spanish-American War he was in charge of the medical supply depot, San Francisco, and during this time was professor of public and military hygiene in the University of California.

General Greenleaf introduced the system of personal identification which is still in use in the army, organized the hospital corps of the army, and was the author of "Greenleaf's Manual for Medical Officers," "Greenleaf's Epitome of Trifler's Manual for the Examination of Recruits," which is still standard, and of many monographs on military-medical topics.

Starling Loving, M.D., one of the oldest, best-known and best-beloved practitioners of Ohio, died at his home in Columbus, September 2, from the infirmities of old age, aged 82. He was born in Russellville, Ky., where he received his preliminary education, and graduated in 1849 from Starling Medical College, Columbus, O., which was founded by his uncle, Lyne Starling. For four years thereafter he was engaged in graduate work in Bellevue Hospital, New York City. During the Civil War Dr. Starling served as major-surgeon of the Sixth Ohio Volunteer Infantry. His society membership included the American Medical Association, of which he was first vice-president in 1894-1895, the Ohio State Medical Association, of which he was president in 1882; the Association of American Physicians, and Columbus Academy of Medicine. He became professor of materia medica in his alma mater in 1857, professor of theory and practice of medicine in 1875 and dean of the faculty in 1884. On the merger of the Starling Medical College and the Ohio Medical University in 1907, Dr. Loving became teacher of clinical medicine in the institution. His hospital appointments included those of physician in chief to St. Francis Hospital, consulting physician to Mount Carmel Hospital and the Lawrence Hospital for Women, and a trustee of the Children's Hospital, Columbus.

Jehiel Tuttle Moore, M.D. McGill University, Montreal, 1874; one of the organizers and for thirteen years dean of the Minneapolis College of Physicians and Surgeons; formerly vice-president, acting president and professor of theory and practice of medicine in the medical department of Hamline University, Minneapolis; who in 1886, presented the resolution to the State Medical Society which eventually resulted in the appointment of a medical board by the legislature to regulate the practice of medicine; died at his home in Minneapolis, August 19, from heart disease; aged 62. Forty members of the State Medical Association honored Dr. Moore by attendance at his funeral. Drs. Horatio B. Sweetser and William B. Murphy acted as active pallbearers and Drs. William J. Byrnes, Leo M. Crafts, David O. Thomas, John D. Simpson, John W. Macdonald and Charles A. McCollom were honorary pallbearers.

Alva Winslow Nichols, M.D. Bellevue Hospital Medical College, 1873; of Greenville, Mich.; trustee of the Michigan Asylum for the Insane, Kalamazoo, from 1882 to 1889; secretary of the board of education from 1896 to 1905; local surgeon of the Pere Marquette, New Erie and Great Central railroads; formerly a member of the local pension examining board; for eighteen years a ward supervisor; died at the home of his sister in Grand Rapids, August 22, aged 62.

Walter Owen Ryan, M.D. Washington University, St. Louis, 1882; a member of the American Medical Association and president of the Sangamon County (Ill.) Medical Society in 1909; a prominent practitioner of Springfield and attending physician to St. John's Hospital, but for the last year a resident of Los Angeles; shot and killed his wife and himself at his home in Los Angeles, September 1, while mentally unbalanced.

Henry Gleason Thrall, M.D. Syracuse (N. Y.) University, 1901; of Fayetteville; formerly a member of the Medical Society of the State of New York and the Manlius Physicians' Club; died at the home of his father at Gouverneur, N. Y., August 10, from tuberculosis, aged 34.

Porter Turner, M.D. Hahnemann Medical College, Chicago, 1886; mayor of Elkhart, Ind., from 1898 to 1902; who had suffered for four years from cirrhosis of the liver; died at his home in the Turner Hospital, Elkhart, August 15, from nephritis, aged 59.

John Duke Waller, M.D. Rush Medical College, 1883; a member of the American Medical Association; for five years assistant physician in the Jacksonville (Ill.) State Hospital; died at his home in Oak Park, August 22, from uremia, aged 59.

John T. Myers, M.D. Washington University, St. Louis, 1871; of Petersburg, Ill.; surgeon in the Confederate service during the Civil War; a member of the Illinois State Medical Society; died in St. John's Hospital, Springfield, August 19, aged 73.

James Sullivan, M.D. Yale University, New Haven, Conn., 1875; of Manchester, N. H.; formerly a member of the New Hampshire State Medical Society and local pension examining surgeon; died in Carney Hospital, Boston, August 16, aged 58.

John E. Angstadt (license, Pennsylvania), a veteran of the Civil War; a member of the board of health of Elizabethtown since its organization, and for one term a member of the school board; died at his home, August 18, from senile debility.

E. L. Nix (license, Texas, 1907), a Confederate veteran and later a soldier in the United States Army; for twenty-nine years a practitioner; died at his home in Kennedale, Tex., January 11, from pulmonary tuberculosis, aged 65.

Joseph Hensley, M.D. Hahnemann Medical College, Chicago, 1871; at one time president of the Oklahoma State Homeopathic Medical Society; died at his home in Oklahoma City, August 20, from senile debility, aged 69.

Wendell D. Neville, M.D. Michigan College of Medicine, Detroit, 1884; of Eagle River, Wis.; a member of the State Medical Society of Wisconsin; died in Chicago, August 24, from valvular heart disease, aged 50.

Samuel Morris Weeks, M.D. College of Physicians and Surgeons, New York City, 1853; Nestor of the medical profession of Nova Scotia; died at his home in Newport, August 19, from senile debility, aged 80.

Leon A. Warsabo, M.D. University of Moscow, Russia, 1868; for thirteen years health officer of Coldwater, Mich.; died at his home in that place, August 23, from cerebral hemorrhage, aged 63.

John E. Lockridge, M.D. Medical College of Virginia, Richmond, 1863; of Indianapolis; died recently at the home of his niece in Nevada, Ia., and was buried in Indianapolis August 15.

William Cyprian Cross, M.D. Vanderbilt University, Nashville, Tenn., formerly of Cherokee, Ala.; died at his home in Hatchubbee, Ala., Dec. 27, 1910, from nephritis, aged 54.

D. A. N. Thomas, M.D. Medical College of Georgia, Augusta, 1888; of Jersey, Ga.; was struck by a train near Fowler's Junction, August 20, and died a few minutes later.

George Calvert Stewart, M.D. College of Physicians and Surgeons, Baltimore, 1878; of Alexandria, Va.; died in the Alexandria Hospital, August 16, aged 58.

Henry Herold (license, Indiana, 1897), a veteran of the Civil War; died at his home in Martinsville, May 15, from valvular heart disease, aged 77.

Benjamin A. Thomas, M.D. Starling Medical College, Columbus, O., 1869; died at his home in Rushville, O., August 6, from senile debility, aged 75.

John Ashbel Johnson, M.D. Albany (N. Y.) Medical College, 1877; died at his home in Chateaugay, N. Y., August 12, aged 72.

Correspondence

Contract-Practice

To the Editor:—I wish to say a public word in commendation of the report of the committee signed by Dr. Edward E. Haley on "The Evils of the Contract-System," and published in THE JOURNAL, Aug. 19, 1911, page 674. If any physician has laid his journal aside without reading that report he should look it up and read it. It is the only paper I have read which goes to the heart of the system. Contract-practice, particularly railroad contract-practice, is the most far-reaching evil at work in lowering the dignity and prestige of medical men and their work.

FRANCIS W. GALLAGHER, El Paso, Tex.

Improper Clothing Deforming the Nipples of Young Girls

To the Editor:—My attention was called some years ago to the coincidence of the adoption of a new style of undershirt by women and an increasing number of cases of so-called retracted nipples.

At first, I was somewhat incredulous in the matter and was disinclined to attribute this very serious deformity to what seemed, at first blush, so small a matter as the wearing of undershirts or vests, by growing girls, in which no special provision is made to prevent pressure on their nipples. I had always supposed that retracted, or rather submerged, nipples were due to tight-fitting corsets. Probably both factors are active in causing this deformity.

I find that a belief is cherished among our profession that so-called retracted nipples may be due to faulty or arrested development, like hare-lip or spina bifida. This, I think, is quite erroneous. So far as I have been able to observe the nipples of little girls with undeveloped breasts, they always protrude beyond the surface of the breast. It seems to be only in the rounded breast of considerable development that the nipple is imbedded in the surrounding tissue, so that the front of the breast is often as smooth as a billiard ball. It seems evident that the pressure of the clothing has held the nipple back while the breast has pushed forward and finally surrounded this sensitive little organ.

This question is of such extreme importance that a most careful and painstaking investigation of its every phase should be carried out. Public institutions like orphan asylums and reform schools for girls would seem to afford a fair field for this study. One would suppose that the wearing of undershirts with pockets to receive the breasts is so simple a matter that it could easily be carried out; yet children are heedless and no one seems to take pains to watch them, or to teach them the need of care of these most important structures.

In talking to a mother the other day on this subject, I was surprised to hear her say that she did not know whether her daughter's nipples were retracted or not. She asked her daughter, a young lady of fifteen or sixteen, to show her breasts and in each of them the nipple was apparently firmly imbedded; at all events, its distal extremity was flush with the front of the breast.

The attitude of our profession should be a firm refusal to countenance the marriage of any nippleless woman. Inability to suckle her offspring ought, in law and conscience, to inhibit any woman from marrying. By insisting on this ultimatum and inciting the mothers of growing girls to be extremely watchful in the prevention of this deformity, we may be able to check its apparently rapid and general increase.

The present generation can scarcely hope to live to see reason and common sense prevail in ordaining the fashions of women's dress, but we ought to be able to prevent the mutilations and self-inflicted deformities of the human body, now, alas! so common.

RICHARD COLE NEWTON, Montclair, N. J.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

DIET FOR GASTRIC ULCER

To the Editor:—What is Lenhartz' diet for gastric ulcer? What percentage of cures does it show?

M. OYEN, M.D., Ellsworth, Wis.

ANSWER.—Lenhartz' diet was described in THE JOURNAL, June 12, 1909, p. 1943. The reported cases do not yet afford sufficient data for an accurate estimate of the percentage of cures.

THE CORRECT PLURAL OF SPOONFUL

To the Editor:—Which is grammatically correct, "teaspoonsful" or "teaspoonfuls"?

C. F. H., Oklahoma.

ANSWER.—The correct plural of "spoonful" is "spoonfuls." "Three teaspoonsful" would mean three full teaspoons, not three times the quantity held in a teaspoon.

SPLINT FORMULA WANTED

To the Editor:—Can you furnish a satisfactory formula for a good cloth or felt splint, which can be made pliable by heat so that it can be molded to the limb, and which will afterward become hard?

F. S. R.

The Public Service

Medical Department, U. S. Army

Changes during the week ended Sept. 2, 1911.

Mason, George L., dental surgeon, left temporary duty, Fort Leavenworth, Kan., en route to station, Fort Snelling, Minn.

Johnston, James F., lieut., left presidio of San Francisco en route to Whipple Barracks, Ariz., for temporary duty.

Schreiner, E. R., major, relieved from further duty with 1st Cavalry and on expiration of present leave will return to Boise Barracks, Idaho.

Johnson, Thomas H., lieut., will accompany Troop A, 1st Cavalry, from Sequoia and General Grant National Park to presidio of San Francisco. Lieutenant Johnson will then proceed to Fort Baker, Cal., for duty.

Ingalls, Raymond E., dental surgeon, on completion of temporary duty at Whipple Barracks, Ariz., will return to Fort Douglas, Utah.

Humphreys, H. G., captain, granted thirty days' leave of absence.

Mason, George L., dental surgeon, returned to Fort Snelling, Minn., from temporary duty at Fort Leavenworth, Kan.

Richardson, William H., captain, granted leave of absence for two months, with permission to apply for an extension of one month, to take effect about Nov. 1, 1911.

Brooks, William H., major, granted leave of absence for one month.

Birmingham, H. P., colonel, granted thirty days' leave of absence about Sept. 1, 1911.

Ireland, M. W., granted twenty-four days' leave of absence about Sept. 1, 1911.

Smith, William H., lieut., on arrival at San Francisco will proceed to Fort Sheridan, Ill., for duty.

Mount, James E., lieut., relieved from duty at Fort Sheridan, Ill., and ordered to Schofield Barracks, H. T., for duty.

Tuttle, Arnold D., lieut., on arrival at San Francisco will proceed to Army General Hospital, San Francisco, for duty.

Napier, Edward L., lieut., relieved from duty at Army General Hospital, San Francisco, and ordered to Fort McDowell, Cal., for duty.

Hutton, Paul C., major, when services are no longer required at San Antonio, Texas, is relieved from duty at Fort Snelling, Minn., and ordered to Fort Howard, Md., for duty.

Geddings, Edward F., major, relieved from duty at Fort Howard, Md., and ordered to Fort Snelling, Minn.

Ashford, B. K., major, relieved from duty with governor of Porto Rico and will report to the commanding officer, Porto Rico regiment of infantry for duty.

Scott, Thomas E., M.R.C., ordered to active duty and assigned to station at Fort Moultrie, S. C.

A board of medical officers to consist of Col. Louis A. La Garde, Lieut.-Col. Walter D. McCaw, Maj. Powell C. Fauntelroy, Maj. Carl R. Darnell, Maj. Frederick F. Russell, Maj. Charles R. Reynolds, Maj. Paul S. Halloran, Capt. William T. Davis, Capt. Charles F. Craig, Capt. William A. Wickline, Capt. William A. Duncan, Capt. Henry J. Nichols is appointed to meet at the Army Medical School, Washington, D. C., to determine the results of the preliminary examination of applicants for the final examination of candidates from admission to the Medical Corps.

Casper, Joseph, lieut., granted thirty days' sick leave of absence and directed to proceed to the Philippine Islands for duty on Oct. 5, 1911, instead of Sept. 5, 1911.

Hathaway, L. M., captain, leave of absence extended one month.

Eber, Albert H., M.R.C., granted two months' leave of absence, to take effect about Oct. 1, 1911.

Worthington, Joseph A., captain, granted one month and fifteen days' leave of absence, to take effect about Sept. 15, 1911.

Edger, Benjamin J., Jr., major, granted four months' leave of absence when his services can be spared.

Northington, E. G., lieut., granted thirty days' leave of absence about Sept. 2, 1911.

Denton, William, lieut., ordered to Fort Bliss, Texas, for temporary duty.

Stayer, M. C., lieut., reports from duty on transport *Buford* to duty as surgeon on the *Logan*.

Medical Corps, U. S. Navy

Changes during the week ended Sept. 2, 1911.

Mackenzie, E. G., P. A. surgeon, detached from the *Kansas* and ordered to duty at the naval hospital, New York.

Toulon, A. J., asst. surgeon, ordered to duty at the naval hospital, Philadelphia.

Winn, C. K., P. A. surgeon, detached from duty at naval hospital, New York, to duty on *Mississippi*.

Holeman, C. J., P. A. surgeon, detached from duty on *Petrel* to home and await orders.

Robertson, G. E., asst. surgeon, detached from duty on *Mississippi* to duty on *Petrel*.

U. S. Public Health and Marine-Hospital Service

Carter, H. R., surgeon, granted seven days' leave of absence from Aug. 24, 1911.

King, W. W., P. A. surgeon, directed to proceed from Naples to Genoa, Italy, on special temporary duty.

McClintic, T. B., P. A. surgeon, granted ten days' additional leave from Aug. 24, 1911.

McLaughlin, A. J., P. A. surgeon, directed to proceed to Reedy Island quarantine and Delaware Breakwater quarantine on special temporary duty.

Francis, Edward, P. A. surgeon, detailed to inspect the laboratory of the State Board of Health of Georgia, at Atlanta, and the Bacterio-Therapeutic Laboratory, at Asheville, N. C.

Foster, A. D., P. A. surgeon, leave of absence for one month from Aug. 2, 1911, amended to read "one month from August 20."

Frost, W. H., P. A. surgeon, detailed to make an investigation into the origin and prevalence of typhoid fever in the vicinity of Fort Smith, Ark.

Evans, J. G., A. A. surgeon, granted nine days' leave of absence, without pay, from Aug. 1, 1911.

Falk, Charles C., A. A. surgeon, granted nineteen days' leave of absence from Aug. 13, 1911.

Hamilton, H. J., A. A. surgeon, granted seven days' leave of absence from Aug. 24, 1911.

Nute, A. J., A. A. surgeon, granted twenty-five days' leave of absence from Sept. 3, 1911.

Tappan, J. W., A. A. surgeon, granted seven days' leave of absence from Aug. 21, 1911.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POSTGRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

THE NEW YORK EVENING JOURNAL ON SCIENTIFIC MEDICINE

In a recent issue of the New York *Evening Journal*, Mrs. Ella Wheeler Wilcox contributed an article in which she extolled "mental healing," and predicted that in 100 years "thought will be the acknowledged power used by all reputable physicians to cure and heal humanity."

The *Journal* says editorially that it is unwilling to print the article without a few qualifications, and then makes some criticisms and comments, from which we quote a part:

"Mrs. Wilcox . . . is right when she criticizes the doctor who, unable to deal with the neurotic young girl, makes of her a morphin fiend, to let himself out of his difficulties, takes money from the girl's father, and in return inflicts the most dreadful curse on her. Such a physician should be put in jail and kept there. . . .

"Mind cures, faith cures, Christian Science, by bringing into play certain forces of the mind, can combat, and sometimes cure, illness caused by a weakened, disorganized mental and nervous condition. It is in substance true, although a little harsh to say, that the modern mental healers 'can cure any disease that you haven't got;' that is to say, that they can cure a disease which is entirely mental and largely imaginary.

"It is untrue and dangerous to say that any mental healing can take the place of a skilful surgeon. Thousands of children are made miserable throughout life because they are not freed from adenoid growths—abnormal developments in the back of the throat which prevent proper breathing. Only the surgeon's knife can remove and cure adenoids. No faith healer, mental healer, Christian Scientist or anybody but a competent surgeon can do that, or ever has done it. Sometimes adenoids may be partially absorbed, extraordinary physical vigor may fight successfully against them. And the placid, happy mental state of the individual who believes in faith healing may help along a good physical condition.

"But you need a surgeon to attend to adenoid growths.

"You need a dentist to attend to your teeth.

"You need antiseptic treatment, or, better still, aseptic treatment, in all surgical operations.

"You need a skilful doctor 'of the old school' in childbirth, and if you have not got one you risk the life of the mother and child—and you ought to be put in jail for doing that. Some faith healers get around the childbirth problem by saying that it is not necessary to have any childbirth, and that if we were sufficiently scientific material births could be eliminated. But that is not very satisfactory when the child arrives.

"The surgeon's knife does slip sometimes. If the surgeon is incompetent he should be driven out of his profession. The plumber's tools slip sometimes and the job is bungled. Such a plumber should be driven out of his profession. Many surgeons and many plumbers lack skill. But that does not justify the silly notion that you can install plumbing in a house with faith or Christian Science, or that, with those agencies, you can remove a vermiform appendix.

"Nobody should interfere with a faith healer or mental healer because that individual takes a dollar or $10,000 from the adult who wishes to employ him. So far as adults are concerned, there is no harm in allowing faith healers to treat their non-contagious diseases from stone-bruise to lockjaw. If the adult is willing to die of a non-contagious disease in order to demonstrate a theory, let him. Such an adult can be spared. But faith healers and others must not be permitted to deal with contagious diseases or pretend to cure them—that is dangerous to the public at large. . . .

"It is not a fact that 100 years from now all doctors will cure with thought. One hundred years from now and 1,000,000 years from now matter will act on matter, and the agency used will be force directed by thought. Thought is the directing agency.

"There are three things in the world—Thought, which rules and directs—Force, which carries out the orders and conceptions of thought—and Matter, in which thought realizes itself and its visions.

"A hundred years from now and a million years from now the surgeon's knife will remove the tumor, if it still exists, just as the plow will cut through the soil and the hammer will carve the stone. But perhaps in a few hundred years, and certainly in a million years, increased intelligence among men, greater self-control, absolute sobriety, wise living, scientific knowledge, even among children, will make disease almost unknown, and limit the activities of physicians almost entirely to prophylaxis, which is prevention.

"But even in a million years, and in ten million years, if the human race lasts as long as that, which it probably will, science, created by the mind, directing force and acting on matter will rule the world.

"When you find a faith healer who can build a hen house with faith and without tools, or move a pebble half an ounce in weight without touching it, when you are willing to trust your plumbing to a faith plumber who says he can cure the leak by thinking about it, then trust your body and your internal plumbing to the medical plumber who cures with thought."

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

[NOTE.—The pamphlets containing the outline of the postgraduate study course for county societies for the coming year are now ready for distribution. Secretaries of county societies can secure supplies by writing to the Secretary, Council on Health and Public Instruction, American Medical Association, 535 Dearborn Ave., Chicago.]

First Month—First Weekly Meeting

General Subject for the Month: Tumors

ANATOMY AND HISTOLOGY: EPITHELIAL TISSUE

ORIGIN, STRUCTURE, CELLS AND STROMA

VARIETIES: Simple and compound.

SHAPE, ARRANGEMENT AND DISTRIBUTION: (1) pavement, (2) cubical, (3) columnar, and (4) ciliated. Describe ciliary motion, causes.

TRANSITIONAL EPITHELIUM: Arrangement, distribution and location.
STRATIFIED EPITHELIUM: Shape, arrangement and distribution.
NUTRITION OF EPITHELIUM: Chemistry of epithelium.

CONNECTIVE TISSUES.

ORIGIN, STRUCTURE, FUNCTION

AREOLA: Distribution, structure, microscopic appearance, cells, matrix, white and yellow fibers.
FIBROUS: Distribution, structure, functions.
ELASTIC: Structure, distribution, histology.
ADIPOSE: Distribution, structure, function, nutrition.
LYMPHOID AND RETIFORM: Distribution, histology.
JELLY-LIKE: Stricture, chemistry, distribution.
CARTILAGE: Varieties, structure, function, chemistry.
BONE: Chemistry: structure (gross and microscopic), nutrition.
BLOOD: Corpuscles (red and white), plasma, serum and fibrin.

MUSCULAR TISSUE

ORIGIN, VOLUNTARY AND INVOLUNTARY

STRIATED AND PLAIN: Distribution of each.
STRIATED, VOLUNTARY: Epimysium, perimysium, endomysium. Sarcolemma and contractile substance. Sarcomere, sarcostyle and contraction. Attachment to tendon. Nutrition of muscle. Nerve supply.
PLAIN, INVOLUNTARY: Distribution. Shape, size, arrangement of cells.
CARDIAC MUSCLE: Differs from others.

NERVOUS TISSUE

ORIGIN, CENTRAL AND PERIPHERAL SYSTEMS

CELLS AND FIBERS: Distribution.
FIBERS.—MEDULLATED: Sheath, axis cylinder, neurilemma, nuclei, nodes of Ranvier.
NON-MEDULLATED: Transverse and longitudinal sections.
CELL: The neuron, cell body, dendrites, axite.
Bipolar cells, distribution, function, description.
Multipolar cells, Golgi cells, two types.
Histology of the cell, staining, shape, size, etc.
Nerve degeneration and regeneration.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

IOWA: Capitol Building, Des Moines, September 19-21. Sec., Dr. Guilford H. Sumner.
MASSACHUSETTS: State House, Boston, September 12-14. Sec., Dr. Edwin B. Harvey.
MISSOURI: Kansas City, September 25-27. Sec., Dr. Frank B. Hiller, Jefferson City.
NEW YORK: September 26-29. Mr. Harlan H. Horner, Chief of Examinations Division, Department of Education, Albany.

Virginia June Report

Dr. R. S. Martin, secretary of the Medical Examining Board of Virginia, reports the written examination held at Richmond, June 20-23, 1911. The number of subjects examined in was 9; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 117, of whom 93 passed, including 3 osteopaths, and 24 failed, including 2 osteopaths. Nine candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
George Washington University	(1911)	82, 89
Georgetown University	(1890)*	
Columbian University, Washington	(1888)*	
Howard University, Washington	(1910) 81; (1911)	82, 82, 84
Metropolitan Medical College	(1899)*	
Rush Medical College	(1888)*	
Hahnemann Medical College and Hospital, Chicago	(1911)	84
Hospital Medical College, Louisville	(1884)*	
Louisville Medical College	(1903)*	
University of Louisville	(1911)	81
Baltimore Medical College	(1911)	78, 81
Maryland Medical College	(1902)* (1911)	75, 77, 81
University of Maryland	(1903)* (1909)	75
Leonard Medical School	(1910) 75; (1911)	75, 77, 79, 81, 81, 81
Woman's Medical College of Pennsylvania	(1911)	80, 81
Jefferson Medical College	(1911)	84
Meharry Medical College	(1911)* (1911)	75, 77, 77, 80
University of Tennessee	(1895)*	
Univ. of Virginia	(1893)* (1910)	82; (1911) 76, 79, 80, 84, 88, 88

Medical College of Virginia, (1910) 77; (1911) the grade of 75 was reached by five; 76 by two, 77 by one, 78 by two, 79 by seven, 80 by four, 81 by one, 81.5 by one, 82 by two, and 88 by one.
University College of Medicine, Richmond, (1911) 75, 75, 76, 76, 76, 77, 77, 77, 77, 79, 80, 82, 82, 83, 83, 83, 86.

FAILED

Howard University	(1909)	71
Hahnemann Medical College and Hospital, Chicago	(1910)	71
Maryland Medical College, (1909) 66, 73; (1910) 71;	(1911)	73, 73
University of Maryland	(1911)	64
Baltimore Medical College	(1900)*	
Leonard Medical School	(1910) 69; (1911)	59, 60, 74
Hahnemann Medical Coll. and Hosp., Philadelphia	(1911)	72
Meharry Medical College	(1911)	64, 72
University of West Tennessee	(1910)	72
University of the South	(1908)	67, 73
Chattanooga Medical College	(1908)	46
University of Virginia	(1910)	71
Medical College of Virginia	(1884)*	

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Howard University	(1897)	Dist. Colum.
Columbian University, Washington, D. C.	(1899)	Dist. Colum.
Maryland Medical College	(1910)	Maryland
University of Michigan, Dept. of Med. and Surg.	(1894)	Michigan
Medical Coll. of Virginia.. (1894) N. Carolina;	(1910)	S. Carolina
University of Virginia	(1902)	N. Carolina
University College of Medicine, Richmond	(1910)	N. Carolina
University of Edinburgh	(1896)	Dist. Colum.

* Took oral examination.

Ohio Reciprocity Report

Dr. George H. Matson, secretary of the State Medical Board of Ohio, reports that at the meetings held by that board April 4 and July 5, 1911, 27 candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Reciprocity with
University of Colorado	(1904)	W. Virginia
Columbian University, Washington	(1903)	Maryland
Medical College of Indiana	(1898)	Indiana
Indiana University	(1908)	Indiana
Johns Hopkins University	(1907)	Maryland
College of Physicians and Surgeons, Baltimore	(1909)	W. Virginia
Maryland Medical College	(1906)	Vermont
Baltimore Medical College	(1900)	W. Virginia
Boston University	(1900)	New Jersey
Detroit College of Medicine	(1910)	Michigan
University of Michigan, Dept. of Med. and Surg., (1908) (2, 1910)	(1879)	Michigan
St. Louis University	(3, 1910)	Illinois
St. Louis College of Physicians and Surgeons	(1903)	W. Virginia
Columbia University, College of Phys. and Surgs.	(1907)	New York
Western Reserve University	(1909)	New York
Medical College of Ohio, (1899) Texas; (1899) West Virginia; (1866)		Indiana
Meharry Medical College	(1895)	Arkansas
Queen's University, Ontario	(1906)	Vermont
Western University, London, Ontario	(1909)	Illinois
University of Kharkof, Russia	(1906)	Vermont

Connecticut July Report

Dr. Charles A. Tuttle, secretary of the Connecticut Medical Examining Board, reports the written and practical examination held at New Haven, July 11-12, 1911. The number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 36, of whom 25 passed and 11 failed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Yale University, (1909) 75.5; (1910) 78.3, 81, 81.8;	(1911)	83.1, 84.3, 84.4, 84.9, 86.6.
Johns Hopkins University	(1911)	77.2, 86.8
Baltimore Medical College	(1911)	75, 75.7, 77.9, 79.4
College of Physicians and Surgeons, Baltimore, (1909) 81.8;	(1911)	75, 77.4, 79.9, 85.6.
Harvard Medical School	(1910)	80.1
Tufts College Medical School	(1911)	87.1
College of Physicians and Surgeons, Boston	(1911)	75.
Miami Medical College	(1875)	78.4
University of Vermont	(1910)	77.5

FAILED

Yale University	(1909)	69.9
Baltimore Medical College	(1903)* (1911)	73.7
Maryland Medical College	(1910) 70.4; (1911)	62.7
College of Physicians and Surgeons, Baltimore	(1910)	68.6
University of Maryland	(1908)	55.9
University of North Carolina	(1910)	73.2
University of Pennsylvania	(1911)	70.9
Temple University	(1909)	70.7
Jefferson Medical College	(1911)	74.2

* Withdrew from examination.

Book Notices

INTERNE KLINIK DER BÖSARTIGEN NEUBILDUNGEN DER BAUCHORGANE. Von Dr. Rudolf Schmidt, k. k. primararzt am k. k. Kaiserin Elisabeth-Spital, Wien. Paper. Price, 14 marks. Pp. 355. Vienna: Urban und Schwarzenberg (American Publishers: Rebman Co., New York), 1911.

The diagnosis of tumors of the abdomen has always been a matter of difficulty. The good results following operation on many such tumors, even malignant ones, make it incumbent on the physician to make as early and as accurate a diagnosis as possible. To one aiming to do this and conscious of the difficulties, Schmidt's book will be of peculiar help.

One good thing about this work is that the author sticks to his text. He talks of malignant growths and not of the non-malignant; there is little of etiology, pathology or treatment, except as it has a direct bearing on the question of diagnosis; there is no needless argument about things theoretical; there is almost nothing of the polemic. There are occasional lapses into unnecessary repetition, but conciseness is the rule.

The book is essentially clinical and based largely on the author's own experience. There is little of quotation or citing of authorities, though one cannot accuse Schmidt of being ignorant of what others have written, for there is clear evidence that he is well informed. Not only does he rely largely on clinical facts in order to reach a diagnosis, but he is inclined to believe that the study of cases of malignant growth from the clinical aspect may throw a great deal of light on the question of etiology. He questions whether the laboratory will detect the one specific cause. He sees the operation of so many contributing factors that he regards the development of a malignant growth as often depending, in part at least, on such facts as a previous freedom from infectious diseases, the existence of dyscrasic conditions producing cell trauma, even the influence of depressing psychic causes.

In line with his emphasis of the clinical features of these neoplasms is his relegation of what are commonly termed laboratory methods to a position of secondary importance. It is not to be understood that he overlooks the aid of the laboratory. Far from it. His directions as to laboratory technic and the value of such examinations are clear and detailed. Yet, the greater importance seems to attach to the history, the symptoms and the examination of the patient's body. The necessity of careful and repeated examinations of the stools for occult blood is referred to over and over again. Yet Schmidt issues a note of warning against the employment of tests that are too delicate and that might detect minute traces of blood which mean nothing in the way of disease. Such tests, he says, may be of chemical but not of clinical interest; they are of "decorative" rather than practical value (p. 97). The various functional tests of the kidney he regards as of slight reliability. He seems loath to employ even instrumental help; the *x*-ray must not be relied on too implicitly; it is rarely necessary to distend the stomach or bowel as an aid to diagnosis. Careful study of the history with attention to even the minutest symptoms, with thorough physical examination will make the laboratory and instrumental examinations not unnecessary but rather auxiliary or confirmatory. Is not this, after all, the right view? Two points in physical examination are often referred to, the one the help to be derived from palpation with the patient in the lateral decubitus, with which one must heartily agree. The other is the stress laid on the value of auscultation for murmurs in the diagnosis of tumors of the stomach, liver, gall-bladder, pancreas, etc. To us, this method seems not to warrant the overemphasis placed on it by Schmidt. The methods of the teacher are seen in a tendency to reduce diagnostic symptoms to tabular form. This is helpful, though at times the tables seem rather artificial and too refined. Take, for example, his subdivision of the pains of carcinoma of the stomach. Stripped of its classification, it means that carcinoma of the stomach may cause pain anywhere in the region of the body from the upper thorax to the symphysis pubis.

The portrayal of the features of typical cases is excellent, but the great value of the book lies in its discussion of atypical cases and its reference to possible misleading symptoms. The exceptional case is the one apt to confuse and is the one on which the author dwells particularly.

We should like a clearer differentiation between ulcer of the stomach and carcinoma. The author's statement that few cases of carcinoma of the stomach originate in ulcer will be questioned by many, though the relation between these two conditions is by no means definitely established. Cardiospasm as a misleading condition should be mentioned in discussing gastric cancer. Other minor features might be criticized, the criticism based largely on the fact that one's personal experience does not tally exactly with that of the author. But the book, as a whole, merits praise as a valuable contribution to the clinical study of malignant tumors of the abdomen.

The last half of the book is taken up with abstracts of cases. The abstracts are excellent. It was from a study of these cases with controlling operation or autopsy that the author was able to write the first half of the book. Numerous references to these cases are to be found throughout the work.

PRACTICAL CYSTOSCOPY AND THE DIAGNOSIS OF SURGICAL DISEASES OF THE KIDNEYS AND URINARY BLADDER. By Paul M. Pilcher, A.M., M.D., Consulting Surgeon to the Eastern Long Island Hospital. Cloth. Price, $5.50 net. Pp. 398, with 233 illustrations. Philadelphia: W. B. Saunders Co., 1911.

This is an elaborate and admirably illustrated treatise, in which "the writer has endeavored to state fairly the indications for cystoscopy, and to outline its technic in the minutest detail, describing the instruments used and how to use them." This, the major content of the book, is commendable in conception and execution; it is obviously based on ample personal experience. There is apparent a tendency toward ill-considered statement, such as the possible differentiation by the cystoscope of a dozen varieties of cystitis; the virtual denial of all chance of extending infection by the ureter catheter if skilfully used; and the extravagant eulogy of a certain cystoscope.

Cystoscopy through a suprapubic puncture, occasionally a valuable procedure, seems worthy of mention in every complete treatise on methods for inspecting the bladder. The jumble of Latin and English in a prescription (p. 92), while a merely academic offense, illustrates the lack of care which is often apparent in the text.

The accessory portion of the work, which discusses collateral methods of diagnosis, is less acceptable; indeed, some of this matter is distinctly misleading. Such is the statement (p. 195) "the only way of definitely determining the character of the ulcer" (whether tuberculous or other) "is by finding tubercle bacilli in the urine or by a guinea-pig test." The marked hyperemia around a tuberculous ulcer, which follows a subcutaneous injection of tuberculin, more quickly and surely distinguishes it from other ulcers than does either of the "only" tests recommended.

The book is probably the most complete exposition of cystoscopy in our language, and will repay perusal by any one who uses the cystoscope.

A TEXT-BOOK OF VETERINARY ANATOMY. By Septimus Sisson, S.B., Professor of Comparative Anatomy in Ohio State University, Columbus, Ohio. Cloth. Price, $7 net. Pp. 826, with 528 illustrations. Philadelphia: W. B. Saunders Co., 1910.

This book, of nearly 850 pages, is an evidence of the fact that the study of the anatomy of domestic animals and the making of books thereon is keeping pace with similar work in human anatomy. The author says that this book has been made in response to a demand for a well-illustrated and up-to-date book on veterinary anatomy, and a cursory review would seem to indicate that the purpose has been well fulfilled. The descriptions are clear, full and scientific. The comparative anatomy of the various domestic animals is always kept in view, which adds value to the work. The nomenclature adopted is that of the best authorities in this and foreign countries. The work should rank well with the books on human anatomy and should meet every requirement of the veterinary student. Mechanically, the book is very satisfactory.

TEXT-BOOK OF OPERATIVE SURGERY. By Dr. Theodor Kocher, Professor of Surgery and Director of Surgical Clinic in the University of Bern. Third English Edition. Authorized Translation from the Fifth German Edition by Harold J. Stiles, M.B., F.R.C.S., Edin., Surgeon to the Chalmers Hospital, Edinburgh, and C. Balfour Paul, M.B., F.R.C.S., Edin., Assistant Surgeon, Royal Edinburgh Hospital for Sick Children. In Two Volumes. Cloth. Price, $12 net. Pp. 723, with 415 illustrations. New York: The Macmillan Co., 1911.

Kocher's "Operative Surgery" has been before the profession for several years and is well known by all who practice surgery. This is the third English edition translated from the fifth or last German edition. The translation has been very well done; one seldom sees a translation from the German that reads as smoothly as does this.

In reading the author's preface one cannot help being charmed by his great earnestness and by his endeavor to impress on all who essay to do surgery the great responsibilities which rest on them. These delightful features are stamped on every page of the work for the author does not simply describe typical and classic procedures but he deals with conditions and each operation is given that touch of life which marks the author as a master and a great teacher. One short quotation under "Surgery of the Gall-Bladder and Bile-Ducts" will suffice to illustrate what is meant:

"Surgeons should realize that it is their duty to the patient to pull him through his illness and not to perform an operation that is classic. This object cannot be obtained by any routine operation, whether based on old or on the most modern theories. Operations which are theoretically excellent when put in practice may often cause the death of the patient because his individual needs are not taken into consideration."

It is this attempt of the author to individualize, coupled with his great experience, which gives to this work its great value.

The only criticisms to be made are those relating to the publisher. The work appears in two volumes instead of one—as in the original German edition—although there are but 723 pages all told, including the index. To give the volumes the appearance of size unusually thick and heavy paper is used. Many large illustrations are unnecessarily duplicated, some of them as often as four times, etc. These defects should be corrected.

It might also be well, in view of the prominence of the translator, to give him the recognition to which he is entitled by placing his name on the back of the volumes below that of the author.

KURSUS DER NORMALEN HISTOLOGIE. Ein Leitfaden für den praktischen Unterricht in der Histologie und mikroskopischen Anatomie. Von Rudolf Krause, a.o. Professor der Anatomie an der Universität Berlin. Paper. Price, 22.50 marks. Pp. 441. Berlin: Urban & Schwarzenberg (New York: Rebman Company), 1911.

The special object of Professor Krause's book is to promote the practical instruction of students in histology and microscopic anatomy. The plan is that the student himself shall prepare most of the preparations described. For this purpose the freezing method is used as well as the paraffin and celloidin methods. Particular emphasis is placed on the value of drawings in the study of the microscopic preparations and all the illustrations—about 208, reproduced by autotype—have been drawn in colors by the author himself. We fear that only few of the students ever reach the standard he has established. The book is divided into two general parts; the first deals with technical matters; the second takes up the cell, the tissues and the organs of the animal body. The text of this part is in reality a plain and succinct explanation of the illustrations together with statements as to the technical methods employed in preparing the objects illustrated. Most of the preparations are of human origin. The illustrations are really very fine. While it is quite obvious that the book has been prepared with direct reference to German conditions, it undoubtedly will prove to be a highly useful book anywhere. It is recommended heartily to the consideration of American teachers of normal histology in the hope that it may prove of assistance in imparting to their students a working knowledge of the microscopic structure of the body and of microscopic technic, heretofore as a rule but indifferently accomplished if we are to believe the testimony of the teachers of pathological anatomy and of clinical laboratory work.

THE FATS. By J. B. Leathes, M.A., M.B., F.R.C.S., Professor of Pathologic Chemistry in the University of Toronto. Cloth. Price, $1.25 net. Pp. 138. New York: Longmans, Green & Co., 1910.

Although not all the promised monographs of this series have yet appeared, already one of the earlier ones has come to a second edition. This is satisfying evidence that the value of these publications is being recognized. So rapidly changing is the subject-matter of biochemistry that no other form of publication can well be so efficient as the one adopted here; namely, inexpensive monographs written by specialists, each covering that part of the entire field with which each writer is most intimately acquainted.

"The Nature of Enzyme Action," the first of the series to enter a second edition, covers adequately and accurately this interesting and fundamentally important subject. Presented originally in the form of lectures, it is more easy to read and assimilate than treatises of this sort are likely to be, a point of particular favor in the eyes of readers who are interested in the subject only in its general aspects. In the new edition the more recent contributions to enzyme chemistry and the theories of enzyme action have been incorporated, the author assuming the reasonably conservative attitude necessary in considering a subject in which theorization is so prominent.

The monograph on fats, by Professor Leathes of Toronto will particularly interest scientific physicians because of the rapid increase of our knowledge of the importance of fats and related substances in biologic processes. Until recently looked on as merely stored food material, the fats and lipoids have now been revealed as vitally concerned in cell activities, almost if not quite as much so as the proteins themselves. They enter, not only into normal processes, but also into the phenomena of immunity, and they modify or determine the effects of many of our most important drugs. With admirable conciseness, but without impairment of reliability, Professor Leathes presents the latest reliable information concerning the chemical composition and behavior of the fats and "lipines" (as he prefers to call the compounds of fatty acids which contain nitrogen), their physical properties, methods of analysis, and the part played in physiology. From our point of view we should have preferred more on the physiologic aspects, concerning which the author himself has made most interesting and inspiring contributions, but as the physiologic side is at present much more speculative than the chemical, the concession of most of the space to the established matter is perhaps the part of wisdom. In any case, the scientific physician will find in this monograph as much to interest and enlighten as in any member of this valuable series.

DIE HODGKINSCHE KRANKHEIT. Von Dr. Kurt Ziegler, Privatdozent in Breslau. Paper. Price, 9 marks. Pp. 204, with illustrations. Vienna: Gustav Fischer, 1911.

This book is an exhaustive treatise on the subject of Hodgkin's disease. The literature is reviewed fully and the author gives his own observations based on a study of seventy cases, in sixteen of which autopsies were held, and in forty cases microscopical examinations of diseased glands were made. In accordance with the present tendency he considers the disease as a specific inflammatory process. The histology is especially well illustrated in five plates with twenty-two beautiful colored pictures. The completeness of the work is well shown in the 600 literary references at the end of the volume. This extensive monograph will take a foremost rank among the treatises on this strange disease.

PSYCHIATRISCHE VORTRÄGE FÜR AERZTE, ERZIEHER UND ELTERN. (Zweite Serie). Von Prof. Dr. G. Anton, Direktor der Klinik für Geistes- und Nervenkranke in Halle a. S. Paper. Price, 2 marks. Pp. 77. Berlin: S. Karger, 1911.

This series of popular lectures on psychiatric themes was prepared for physicians, educators and parents. They constitute good reading and appear under the following titles: "1. The Expression of the Emotions in Healthy and Diseased Persons." "2. Mental Epidemics of Past and Present." "3. Normal and Abnormal Development of the Child." "4. Alcoholism and Heredity." "5. The Causation and the Operative Treatment of Epilepsy." These lectures are written in popular style and can be safely put into the hands of any educated person.

Medicolegal

Denial of Sexual Intercourse as Ground for Divorce, Especially When a Matter of Health

(Raymond vs. Raymond (N. J. Ch.), 79 Atl. R. 430; Lohmuller vs. Lohmuller (Tex. Civ. App.), 135 S. W. R. 751.)

The Court of Chancery of New Jersey holds that a spouse's wilful refusal to engage in sexual intercourse is desertion under the statute, making desertion a ground for divorce, and, hence, where a husband refused to consummate the marriage by sexual intercourse, he deserted his wife, even though he supported her, and they lived under the same roof. It says that the cases generally admit that unjustifiable withdrawal from marital cohabitation constitutes desertion. Marital cohabitation implies necessarily something more than merely living under the same roof. Where will the line be logically drawn, unless it is held that to constitute matrimonial cohabitation it must include those duties which distinguish the marital from every other contractural relation? When cohabitation in its true sense in the marriage relation ceases, desertion commences.

But the Court of Civil Appeals of Texas holds that a decree of divorce was wrongly granted where the testimony of the plaintiff showed that the sole ground for the divorce was a refusal on the part of his wife to sacrifice herself to his sensual desires, the uncontradicted evidence showing that she was a nervous, frail woman, who would probably die if she bore another child, and the plaintiff was fully advised of that fact by the family physician, and he was also told that he should not demand that his wife submit to his embraces, except under certain conditions, which conditions the plaintiff stated rendered him nervous and made him sick, but which the only physician who testified stated could not and did not injure him; in fact, could have no hurtful effect whatever. The refusal to accede to the passion of a man who knew that childbearing would destroy the life of his delicate, nervous wife, and who was unwilling to inconvenience himself in any way to prevent such a catastrophe, would not constitute such "excesses, cruel treatment, or outrages" toward him as would entitle him to a dissolution of the marriage ties. Even an unjustifiable refusal of marital rights is not necessarily a cause for divorce, and when there is no refusal but merely certain conditions are prescribed which cannot injure the husband, but will protect the wife from probable death, the divorce should not be granted.

Railroad Companies Not Liable for Malpractice in Hospital Departments—Office of Physicians

(Arkansas Midland Railroad Co. vs. Pearson (Ark.), 135 S. W. R. 917.)

The Supreme Court of Arkansas had in this case for decision for the first time for that state the question of the liability for malpractice of a railroad company maintaining a hospital department out of funds deducted from the wages of employees. Its conclusion is that the law was correctly stated in an instruction given to the jury that, even though the hospital at St. Louis and the local surgeons at different points on the railway system of the company, were maintained by small sums of money deducted monthly from the wages of the employees of the company, yet the only duty which it owed its employees in regard to medical and surgical attention was to use reasonable care in the selection of physicians, surgeons or attendants.

It is generally held, the court says, that hospitals conducted for charity are not responsible for the negligence or malpractice of their physicians, and that persons and hospitals which treat patients for hire, with the expectation and hope of securing therefrom gain and profit, are liable for such negligence and malpractice on their part.

This hospital department could not be said to be conducted as a charity, for only those employees who had contributed the fees deducted from their wages for its maintenance were entitled to enter there for treatment, and all the physicians and employees required to maintain and operate it were paid from such fund. Nor could it be said to have been administered by the railroad company out of pure philanthropy, since it may have had some benefit therefrom in decrease of amount of damages for injuries caused in the operation of the road, and the better and more efficient service to the company of its employees because of its maintenance. It was also true that none of the employees was required to accept the treatment provided at the hospital, and none could do so unless before their service with the railroad company was ended, thus in effect creating a fund for the benefit of themselves, it might be, and certainly for others.

It was not contemplated by the employees in their contribution to this fund that it should be used in the payment of damages for the negligence or malpractice of physicians employed in the operation of the hospital department, and certainly the railroad company that assumed gratuitously to collect and preserve the fund and provide hospital accommodations and competent physicians and surgeons to operate it, without any profit or gain or hope thereof therefrom, should not be required to pay damages for such negligence or malpractice; it being no part of its business under its charter to maintain a hospital. At most it could be considered only a trustee for the proper administration and expenditure of the fund, and should be held only to ordinary care in the selection of competent and skilful physicians to administer relief and provide attention to sick and injured employees. If the railroad company did in fact realize a profit from the total deductions from the wages of its employees for the hospital fund, after paying for the support and maintenance thereof and the employment of physicians, or if it agreed and contracted with such employees in consideration of the fees paid by them to furnish proper medical attention, the rule might be different.

A physician cannot be regarded as an agent or servant in the usual sense of the term, since he is not and necessarily cannot be directed in the diagnosing of diseases and injuries and prescribing treatment therefor; his office being to exercise his best skill and judgment in such matters, without control from those by whom he is called or his fees are paid.

Powers Conferred by Statute on Board of Health—Unwarranted Regulation of Sale of Milk

(Commonwealth vs. Drew (Mass.), 94 N. E. R. 682.)

The Supreme Judicial Court of Massachusetts says that this was a complaint against the defendant for violation of a regulation of the board of health of the city of Boston which provided that: "No person or corporation shall sell or offer, expose or keep for sale in any shop, store or other place where goods and merchandise are sold, milk or cream, unless the same is sold or offered, exposed or kept for sale in tightly closed or capped bottles or receptacles which have been approved by the board of health." The court does not consider the question whether this regulation went beyond the constitutional power of the legislature to enact as a statute, or to authorize the board of health to establish locally, but simply holds that the statute under which the board assumed to act was not broad enough to give authority for it. That statute was as follows: "The board of health shall examine into all nuisances, sources of filth and causes of sickness within its town, or on board of vessels within the harbor of such town, which may in its opinion be injurious to the public health; shall destroy, remove or prevent the same, as the case may require, and shall make regulations for the public health and safety relative thereto and relative to articles which are capable of containing or conveying infection or contagion, or of creating sickness, which are brought into or conveyed from its town, or into or from any vessel."

That statute does not give the board power to make regulations as to all matters affecting the public health. If the board should be certain that the smoking of cigarettes by boys affects their health injuriously, it would have no power to make a regulation forbidding the smoking of them by boys under a certain age, or the sale of them to such boys. It has no power to make general regulations as to conduct or practices injurious to health, which, if indulged in by many persons, affect the health of the public.

The statute gives the board jurisdiction to deal with "nuisances, sources of filth and causes of sickness within its town." It was agreed that the milk kept for sale by the defendant

was kept in a vessel contained in a covered cooler; that it was always kept at a temperature less than 50 degrees Fahrenheit, and that none of it was allowed to stand outside of the cooler except while a sale of milk was being made; that the cooler was always kept properly drained and cared for and tightly closed, except during such interval as was necessary for the introduction or removal of milk or ice, and was kept in such location and under such conditions as were approved by the board of health. The milk was wholesome milk of standard quality, was taken from a clean, new tin cylinder or vessel, set in a clean, new ice chest, surrounded by clean, wholesome ice. The vessel had a removable cover which was new and clean, and the measure which was used by the defendant in retailing the milk was new and clean, and hung inside the tin cylinder so that it was not exposed to the air. The cylinder was simple in shape, was easily cleaned and was susceptible of perfect sterilization. The sales were made in any quantities desired by customers from one cent's worth upward. Plainly the milk in question was not a nuisance or a source of filth.

In determining the meaning of the words "causes of sickness," the doctrine of *noscitur a sociis*, or the meaning of a word is or may be known from the accompanying words, was to be applied. Primarily it referred to something local, and the board was directed "to destroy, remove, or prevent the same."

The court is further of the opinion that, within the meaning of the language of the statute, milk kept in a vessel, as this was kept by the defendant, was not a "nuisance, source of filth, or cause of sickness," which gave the board of health jurisdiction to take any action or make any regulation under the portion of the statute which gives the board jurisdiction to make regulations "relative to articles which are capable of containing or conveying infection or contagion, or of creating sickness, which are brought into or conveyed from its town, or into or from any vessel." That has reference to the bringing into the town or conveying away of articles capable of containing or conveying infection, in such a way as to affect injuriously the public health or safety. It relates to articles of such a kind as to be dangerous in reference to their capability of containing or conveying infection or contagion, or of creating sickness, in connection with their removal from one town to another. Pure milk is not such an article as is referred to in the statute.

Another Court Holds Chiropractic a Practice of Medicine—Sufficiency of Complaint and Validity of Law—"Adjustments" are "Treatments"

(*State vs. Greiner* (*Wash.*), 114 *Pac. R.* 897.)

The Supreme Court of Washington affirms a conviction of the defendant who was charged with practicing a mode of treatment of the sick and afflicted known as chiropractic, without having at the time of so doing a valid, unrevoked certificate to practice such mode of treatment from the proper authorities. The court says that the Code makes it a misdemeanor for any person to practice, or attempt to practice, or hold himself out as practicing, medicine and surgery, osteopathy or any other system or mode of treating the sick or afflicted in the state of Washington, without having at the time of so doing a valid, unrevoked certificate from the Board of Medical Examiners of the state, entitling him so to do. The complaint, while not to be recommended as a model, charged in effect that the defendant, at a time and place certain, did wilfully and unlawfully practice a mode of treatment of the sick known as chiropractic, without having a license therefor from the proper authorities, in that she did then and there prescribe, direct and recommend certain treatment for the cure and relief of certain bodily infirmities and diseases of the complaining witness. That was sufficient. It was not necessary, under the Washington Code, that the acts constituting the offense be set forth in the complaint with the technical precision required at common law.

It was a material fact in the case that the defendant used a vibrator on the prosecuting witness.

The evidence, it was argued, was insufficient to justify a conviction. The statute, it will be noticed, makes it an offense to practice any mode of "treating" the sick and afflicted, and the defendant testified that, instead of using treatments for the ailments of the prosecuting witness, she used "adjustments," and hence was not guilty of any violation of the statute. But the court thinks that was a mere play on words. Her methods were fully described in the record, both by the prosecuting witness and by herself, and to the mind of the court they fell as well within the definition of "treatment," as they did of "adjustment." She had the patient remove her street clothing and put on a kimono; she diagnosed the patient's ailments with the aid of a vibrator; she manually manipulated the supposedly diseased parts; she prescribed a dietary for the patient; she collected a fee, and advised the patient to return for further manipulation. That, so far as the court's observation extends, did not differ materially from the methods of unlicensed practitioners generally, who confessedly give treatments for the sick and afflicted.

It was finally objected that the act under which the defendant was prosecuted was unconstitutional. It was objected, first, that it embraced more than one subject, and, second, that the science practiced by the defendant was not a subject for regulation by the legislature. Neither of these objections was well founded. The purpose of the act is to regulate the mode of treating the sick and afflicted, and the fact that it may contain provisions affecting a variety of practitioners, having different systems and methods of treating the sick, does not render it subject to the objection that it contains more than one subject. The science, if it be such, practiced by the defendant is clearly a mode of treating the sick and afflicted. As such it is by all authority subject to regulation. To call the method of treatment "chiropractic" and the treatments given "adjustments" does not change its nature. If the practice has any beneficial purpose at all, its purpose is to heal the sick and afflicted, and to regulate the practice of healing the sick and afflicted is unquestionably within the acknowledged powers of the state.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Surgery, Gynecology and Obstetrics, Chicago

August

1 *Peritonization in Pelvic Surgery, With Special Reference to the Use of the Sigmoid Flexure of the Colon. J. E. Summers, Omaha, Neb.
2 *Epispadias in the Female, and its Surgical Treatment. H. J. Stiles, Edinburgh.
3 *Improved Technic in Brain Surgery. E. W. Andrews, Chicago.
4 *Salt Solution as a Filling for Bone Cavities and for Vacant Spaces in the Hard and Soft Tissues. H. M. Sherman, San Francisco.
5 *Subcutaneous Injection of Normal Human Blood Serum to Prevent and Overcome Postoperative Hemorrhage in Patients With Chronic Jaundice. W. Meyer, New York.
6 Perforating Bullet Wounds of the Femoral Artery and Vein Resulting in Aneurysmal Varix; Two Wounds in Each Vessel Closed by Sutures; Recovery. G. T. Vaughan, Washington, D. C.
7 *Open Treatment of Transverse Fracture of the Femoral Shaft. E. Martin, Philadelphia.
8 Primary Heart Failure in Normal Subjects Under Ether. Y. Henderson, New Haven, Conn.
9 Chloroform Anesthesia. J. E. Moore, Minneapolis, Minn.
10 *Unintcrrupted Anesthesia in Operations on Face and Mouth. E. Souchon, New Orleans, La.
11 *Nitrous Oxid Anesthesia and Anoci-Association, New Principle in Operative Surgery. G. W. Crile, Cleveland.
12 *Recent Cases of Inoperable Sarcoma Successfully Treated With Mixed Toxins of Erysipelas and Bacillus Prodigiosus. W. B. Coley, New York.
13 *Intestinal Perforation in Typhoid. C. Bagley, Baltimore, Md.
14 Two Cesarean Sections on Unusual Indications. E. Essen-Möller, Sweden.
15 Treatment of Compound Fractures. C. Beck, Chicago.
16 Treatment of Fractures of Long Bones. W. Hessert, Chicago.
17 *Intestinal Anastomosis by Invagination. W. W. Grant, Denver, Colo.
18 *New Operation for the Vaginal Shortening of the Utero-Sacral Ligaments. H. Jellett, Dublin, Ireland.
19 *Local Uses of Formalin. J. C. Stewart, Minneapolis.

1. **Peritonization in Pelvic Surgery.**—The procedure to which Summers refers particularly and one with which he has had many personal experiences, consists in transporting the sigmoid flexure across the pelvis and suturing it in such a way that all raw surfaces are covered over. The sigmoid is only

fixed below and is almost always sufficiently mobile to be carried across the pelvis to the right side as far as the cecum. When the uterus is preserved the sigmoid is sutured to the lateral walls of the excavation and across the fundus of the uterus. When the uterus is sacrificed the sigmoid is sutured to the lateral walls of the excavation and to the bladder. Drainage should be made through the vagina. Except in cases of total hysterectomy, Summers has almost always employed a cigarette drain coming out of the extraperitoneally excluded space between two of the stitches, tacking the sigmoid flexure in position and draining externally at the lower angle of the abdominal incision. The fastening of the sigmoid as indicated has never, in a large number of cases in which Summers has used the method, interfered in any way with the function of the bowel. This technic is said to be particularly advantageous when septic pus or genital abscesses communicate with the intestine; for example, a pyosalpinx, or suppurating tumor of the ovary, opening into the large bowel; again, when there coexist a genital abscess with a perforative appendicitis. The intestinal sutures are situated under the protection of the cavity drained and are extraperitoneal.

2, 3 and 7. Abstracted in THE JOURNAL, July 29, 1911, pp. 414 and 415.

4. **Salt Solution as Filling for Bone Cavities.**—Some years ago, in doing an operation for the removal of the Gasserian ganglion, Sherman wounded the dura mater and had to suffer, during the operation, from the annoying leakage of cerebrospinal fluid. When it came time to close the wound the squeezed-up brain in the collapsed sac of the dura mater did not readily expand to fill the space within the skull. In order to avoid leaving a large amount of air in the wound, Sherman poured in sterile physiologic salt solution, and sutured the scalp over it. The wound healed normally and the patient recovered uneventfully. Since then he has used salt solution to fill all cavities or spaces that could not be closed by suture, except that he has not used it in cavities or spaces that were actually or potentially septic.

In four instances children presenting themselves with the symptoms and signs of hip-joint tuberculosis were shown, by radiogram, to have localized tuberculosis foci or abscesses in the diaphysial portion of the femoral neck. In these instances Sherman has opened the trochanter by a trephine, extended the wound to the abscess, cleaned it out and removed the softened bone around it, and then filled the cavity with physiologic salt solution and sutured the fascia and integument over the bone wound. In one instance there occurred normal healing which was permanent, the tuberculous process stopped and the child made a relatively quick and complete recovery, which has been permanent for four years. In two instances there occurred normal healing, but the tuberculosis was not controlled and the cases followed the usual course of a hip-joint tuberculosis, not benefited by the operation. In the fourth instance there occurred normal healing and the child returned home in a plaster-of-Paris spica. Within a month after the operation an acute pneumonia developed and caused death. Sherman secured the head, neck and trochanter on which he had operated. The wound cavity he had made in the trochanter and neck was filled by a layer of granulation tissues with a blood clot, apparently undergoing absorption, in the center. Four other cases are cited.

The method is, in reality, a reversion to Schede's filling, but with an improved technic, in that the wound is not closed before the removal of the Esmarch tourniquet, nor is a drainage arranged for. Instead of this, hemostasis is secured in the usual way, then the bone wound is filled with the salt solution and the soft tissues are sutured closely with no drainage. In all instances so far healing has been normal and permanent.

5. **Normal Human Blood-Serum to Prevent Postoperative Hemorrhage.**—This procedure, first used by J. E. Welch as a curative agent in hemophilia neonatorum, has been resorted to by Meyer in four cases with good results. The jaundice in all of the four cases reported was due to carcinoma. In none did any parenchymatous hemorrhage occur after the prophylactic and postoperatively resumed injections of normal human blood-serum. The favorable outcome in the first case was remarkable: after the preliminary injection of a total of 105 c.c. (3½ ounces) of normal human blood-serum, no more being on hand, and 30 c.c. directly after the operation, a severe intestinal hemorrhage sets in ninety hours after operation; patient's condition desperate. Under resumed serum treatment the fever soon drops, bleeding ceases permanently, and patient recovers. Meyer says that the injections should be started at least two days before operation, 30 to 60 c.c. (1 to 2 ounces) to be administered three times per day, and should be continued right after operation for another forty-eight to seventy-two hours. It is wise to provide for the serum in time; both cephalics of two healthy individuals should be tapped; they will yield from 300 to 400 c.c. (10 to 14 ounces) of serum. Wassermann's reaction should, of course, be made; it does not seem of great importance, according to Meyer's observations, to test and follow up the coagulation time of the blood, although the latter appeared repeatedly reduced in course of the serum treatment.

10. **Uninterrupted Anesthesia in Operations on Face and Mouth.**—Souchon has devised a small apparatus for the purpose of keeping up the anesthesia uninterruptedly by introducing a rubber tube into the throat through the nose and mouth.

11. **Nitrous-Oxid Anesthesia.**—On the theory that nitrous oxid owes its anesthetic property to its power of limiting oxidation in the brain tissue, and the theory that shock is due to an exhausting activity of the brain cells due to injury, Crile says one might very properly infer that the brain cells were by nitrous oxid prevented from making the harmful expenditure of energy, thus minimizing the shock. The exclusion of fear and of trauma from the brain prevents any noxious associations. This state is expressed by Crile by coining a new word, viz., anoci-association. Operations on neurasthenic subjects under anoci-association preserves to a remarkable degree the nervous system.

12. **Treatment of Inoperable Sarcoma.**—Up to the present time Coley has had sixty-five cases of inoperable sarcoma in which the tumors disappeared under the use of mixed toxins of erysipelas and bacillus prodigiosus. The utmost efforts have been made to trace the after-histories of these cases, with the following results: Seven remained alive and well at the end of fifteen to eighteen years. Seven remained alive and well at the end of ten to fifteen years. Seventeen remained alive and well at the end of five to ten years. Ten remained alive and well at the end of three to five years. That is, forty-one cases remained well from three to eighteen years, or thirty-one from five to seventeen years. As to the correctness of the diagnosis in these cases, Coley says that they were practically selected cases, i. e., selected by the leading surgeons of America, as hopeless, inoperable cases. In all of these cases, with exception of four, the diagnosis was confirmed by careful microscopic examination, in most cases not by one, but by several of the most competent pathologists. In order to still further eliminate all chance of error in diagnosis in a large number of the cases, there was a history of very rapid growth and repeated recurrence after operation. If further evidence were needed, it is furnished by a small number of cases in which, after the complete disappearance of the tumor under the toxin treatment, the disease afterward recurred locally and generally and caused the death of the patient.

13. **Intestinal Perforation in Typhoid.**—Bagley presents the results of a statistical study of all cases of intestinal perforation in typhoid recorded in the literature from 1884 to the present.

17. **Intestinal Anastomosis by Invagination.**—By invagination Grant means a complete invagination of one gut bodily into another, the lower end of the upper segment, preferably 2 or more inches. He reports one case of obstruction in the sigmoid due to a small tumor in which he employed the method successfully. A long, curved, strong-bladed forceps was inserted through anus and rectal segment, and the latter being very much constricted at inner, or upper, end was

stretched by spreading the blades of the forceps. The upper, or sigmoid segment, was grasped by the forceps and pulled through rectum and anus, making a snug fit at the upper rectal opening. The peritoneal cavity was now flushed with warm salt solution. Two or three interrupted stitches were applied to the invaginated gut and lower posterior uterine surface, the latter being the only fairly normal tissue in the vicinity. The patient was now put in lithotomy position, and the sphincter ani divided subcutaneously, in order to facilitate drainage. The invaginated gut was fixed with four silkworm-gut sutures to the mucocutaneous margin; and as an additional precaution against retraction and premature cutting through of the sutures, a safety pin was passed through a segment of the gut. For drainage, a rubber tube was inserted between the rectal mucosa and invaginated segment, and another through the invaginated or upper segment. By this means, drainage of both the pelvic peritoneal cavity and intestines was provided for. The abdominal wound was closed without drainage and patient put to bed in the Fowler position.

18. **Vaginal Shortening of Utero-Sacral Ligaments.**—This operation consists in exposing the utero-sacral ligaments at their insertion into the uterus, in cutting them off at the uterus, and in bringing them round in front of and below the cervix, and at the same time shortening them as may be found necessary, so that they become again a support to that part of the uterus. The operation is said to be indicated in cases of prolapse of the uterus due to or associated with elongation of these ligaments. Jellett says that if there is prolapse of the uterus alone, unaccompanied by prolapse of the vagina, then shortening of these ligaments followed by any operation for the cure of backward displacement, e. g., ventral suspension or Alexander's operation, is usually sufficient. If the perineum is torn, its repair and the suture of the levator ani muscles are also necessary. If the vagina is everted, and particularly if there is a large cystocele, Wertheim's interposition operation also is indicated, provided the patient is past the child-bearing period, or, if not, that the tubes are divided at the same time. If the patient is still likely to have children, an ordinary anterior colporrhaphy is safer. If the cervix is markedly hypertrophied in the supravaginal portion, then supravaginal amputation is also necessary. In a typical case of complete prolapse, with eversion of the vagina, hypertrophy of the cervix, and tearing of the perineum, Jellett usually performs an operation consisting of the following steps: 1. Curetting. 2. Supravaginal amputation of the cervix. 3. Shortening of the uterosacral ligaments by the vaginal route. 4. Interposition of the uterus (Wertheim's operation). 5. Colopoperineorrhapy.

19. **Local Uses of Formalin.**—Stewart has found that the 40 per cent. solution of formaldehyd is useful locally in infected wounds as a germicide. It should be used freely, left approximately one minute and then neutralized by abundant solution of hydrogen peroxid. In ulcerative offensive cancers its use checks discharge and odor with little pain. The fungus of sarcoma can be controlled very perfectly by this agent without bad results.

Lancet-Clinic, Cincinnati

August 19

20 Appendicitis Cases and Deductions. M. A. Tate, Cincinnati.
21 Intestinal Infections of Infancy and Childhood and Their Treatment. J. B. Ballinger, Bradford, O.
22 Venereal Prophylaxis. L. H. Montgomery, Chicago.

Journal of Nervous and Mental Diseases, Lancaster

August

23 *Etiology of the Occupation Neuroses and Neuritides. W. E. Paul, Boston.
24 *Pachymeningitis Interna. I. W. Blackburn, Washington, D. C.

23. Abstracted in THE JOURNAL, July 29, 1911, p. 417.

24. **Pachymeningitis Interna.**—Blackburn is convinced that the essential feature of the condition is the primary formation of a fibrinous exudation on the inner surface of the dura mater as the result of some form of irritation, and that at the same time the dural surface is to a great extent denuded of its endothelium, which permits of the emigration of leukocytes and proliferated connective tissue cells into the meshes of the fibrinous layer. These cells then begin to show formative activity, fibroblasts are formed which by their growth and fibrillation form a loose connective tissue from which the fibrinous matrix gradually disappears. The new tissue becomes vascular by the formation of wide, thin-walled capillaries which grow into it from the pre-existing vessels of the dura, the process being exactly similar to the so-called organization of inflammatory exudates elsewhere. At first the new membrane may show no hemorrhage and not even pigmentation; it is thin, soft, nearly transparent, and only slightly rose-tinted, by the presence of new capillary vessels; but the thin-walled vessels being under slight abnormal tension due to the congestive hyperemia of the dura, are easily ruptured, and hemorrhage occurs within the membrane or between it and the dura. The effused blood if small in quantity is absorbed in time, leaving pigment behind as a rust-colored stain in the new membrane. Such new membranes may be formed, layer after layer, if the process continues, the newer membranes being formed on the inner surface of the older ones, and subsequent hemorrhages will occur between the lamina as they did primarily between the first-formed layer and the dura.

The organic connections between the new membrane and the dura are at first slight, being only by means of the vascular extension, so that when rupture of a vessel occurs the blood forces its way between the layers, new vessels are torn, and in this way the larger hemorrhages occur, frequently only limited by the margin of the area where the organic adhesions are firmer. Though hemorrhage is almost the rule in these neo-membranes, it is by no means always a prominent feature. Quite frequently in the newest films they are absent, and in some old and well-organized fibrous membranes blood extravasation shows no evidence of ever being prominent. Such neo-membranes from their organization, their firm fibrous character, and their perfect organic junction with the dura may be overlooked, or, if discovered, may be taken by the inexperienced for the inner layer of the dura.

Wisconsin Medical Journal

July

25 *Relation of Physician to the Public Campaign Against Tuberculosis. H. E. Dearholt, Milwaukee.
26 *Rabies in Wisconsin and its Control. M. P. Ravenel, Madison.
27 Treatment of Puerperal Infections. F. W. Van Kirk, Janesville.
28 European Clinics. R. U. Cairns, River Falls.
29 Rupture of Uterus Before Term with Continuation of Pregnancy. F. R. Hyslop, Whitewater.

25 and 26. Abstracted in THE JOURNAL, July 22, 1911, pp. 313 and 315.

Boston Medical and Surgical Journal

August 17

30 Sixty Cases of Syphilis Treated with Salvarsan. J. H. Cunningham, Boston.
31 Boston's Hospital School for Tuberculous Children. E. A. Locke and T. J. Murphy, Boston.
32 Tree Cancer. H. Packard, Boston.
33 *Unusual Monstrosity. J. R. Torbert, Boston.
34 Skin Grafting in the Repair of Contractures Due to Burns. B. Vincent, R. M. Green, J. F. Tomkies and W. T. Graham, Boston.

33. **Unusual Monstrosity.**—In the case cited by Torbert labor started by a high rupture of the membranes. Palpation of the abdomen at this time was most interesting; the uterus was pulled well over to her left side and felt like a bicornuate uterus. In the left cornua was felt a soft solid tumor similar to a breech, but of a firmer consistency; the small parts were on her right and one fetal heart was heard. A head well engaged in the pelvis was felt from above and another breech was palpated on her right side. Labor was short, but the uterine contractions were frequent and severe, and at times the retraction of the median scar looked as if the uterus was about to rupture. After full dilation an easy low forceps operation was done under ether anesthesia and a male baby weighing 4 pounds delivered; the baby cried at birth. In a few minutes the feet of a second baby appeared in the vagina; these feet were clubbed and a monstrosity was then suspected.

Traction on the feet resulted in their coming off. Intrauterine examination disclosed the true condition; the smooth rounded upper pole of the monstrosity prevented any grasp of it. No fissures of the body could be felt in which to insert an instrument. Finally, after repeated efforts, the cranioclast was attached to one thigh extending up on to the abdomen; to the other thigh were attached two French hooks, and with suprapubic pressure and traction from below the monstrosity was delivered. The monstrosity weighed 3 pounds. There was one placenta, two cords and two amnions. The first twin had a temperature of 106 F., and died twelve hours after delivery; there was no autopsy.

The dissection of the monstrosity was interesting, showing an abnormal development of the genito-urinary tract with a deficiency of development of all of the other abdominal organs. The penis is an excellent example of congenital paraphimosis. Both feet were clubbed to a marked degree. On opening the monstrosity in the median line, the subcutaneous tissue was thick and edematous; several cyst-like cavities filled the tissues outside of the chest wall. In the chest cavity no lungs could be demonstrated, no heart was visible, but some tissue was run through, which proved to be cardiac in origin. No spleen, liver or pancreas were found. The intestines were rudimentary. The striking feature was the extraordinary development of the entire genito-urinary apparatus. The kidneys were large, the ureters patent, the testicles in the vicinity of the kidneys. The bladder and urethra were dissected out intact. The vertebral column stopped above at the dorsal region; section of the cord showed nothing abnormal on macroscopic inspection.

Sections were cut of pieces removed from the abdominal cavity, but no organs could be definitely determined, the probability being that the tissue was in the early embryologic form and so not recognizable.

Journal of Kansas Medical Society, Kansas City

August

35 Examination of the Insane. T. C. Biddle, Topeka.
36 Diagnosis and Treatment of Paresis. L. R. Sellers, Osawatomie.
37 Maternal Nursing. J. T. Scott, St. John.
38 Gastric Ulcer. C. A. Meyer, Wichita.
39 Appendicitis from a Practical Standpoint. W. P. Coon, Caney.
40 Syphilis as Seen and Treated by the General Practitioner. G. A. Blasdell, Garnett.

New York Medical Journal

August 19

41 Modern Vitalism. C. E. Woodruff, Cebu, P. I.
42 National Insurance Against Sickness and Invalidity. G. P. Forrester, Darmstadt, Germany.
43 The Regressive Psychosis of Alcoholism. A. D. Bush, Wakefield, Mass.
44 Arteriosclerosis; Its Treatment. B. Robinson, New York.
45 The Pathology and Surgery of Renal Infections. I. Collica, New York.
46 Secondary Tumors of the Heart. H. L. Peters and L. S. Milne, New York.
47 *Strange Case of Anaphylaxis. B. Kaufman, Marysville, Cal.

47. **Anaphylaxis.**—The author was the patient in this case. While treating a virulent case of diphtheria in May, he took 500 units of diphtheria antitoxin. Beyond a slight urticaria, localized at the point of injection, there was no result. In December of the same year, he had three cases of diphtheria in the same family. While injecting one of the patients, a young boy, 5 years old, he struggled and the needle escaping from the skin of the lad, penetrated Kaufman's left thumb. He went to a drug store and injected himself with 1,000 units of diphtheria antitoxin. Inside of fifteen minutes the whole left arm was swelling until in a few hours it was about three times the normal size. There was intense pain in the member, with generalized aching, more or less nausea, and intense urticaria. There was no reaction at the site of injection suggesting infection, and, indeed, strict aseptic technic had been observed. The swelling gradually increased so that the fingers could not be closed. A blood count at that time showed 7,000 white cells with nothing abnormal, no rise of temperature and no symptoms of infection. He was given atropin sulphate, 1/150 grain, every four hours, until its full physiologic effect was apparent, ordered to bed and put on a restricted diet. The only comfort obtainable was by holding the arm in a vertical position. After four more days the swelling gradually subsided and has left no obvious effect.

Ohio State Medical Journal, Columbus

August 15

48 Care and Observation of Pregnant Women. C. M. Green, Boston.
49 *Choice of Method of Delivery in Difficult Labors. A. J. Skeel, Cleveland.
50 Diagnosis and Surgical Management of Perforation in Enteric Fever. S. D. Foster, Toledo.
51 Suggestions for Improving Public Health Service. C. O. Probst, Columbus.
52 Latest Advances in Our Knowledge of Syphilis. A. Ravogli, Cincinnati.
53 Cervical Glandular Infection from Diseases of the Throat. W. W. Pennell, Mt. Vernon.
54 Tuberculosis of the Nose with Report of Two Cases. W. Chamberlin, Cleveland.
55 Practical Points in Treatment of Nephritis. M. H. Fischer, Cincinnati.

49. Abstracted in THE JOURNAL, May 27, 1911, p. 1600.

Medical Record, New York

August 19

56 *Means of Controlling the Hemorrhage from Inoperable Neoplasms of the Bladder; with Cases Illustrating Trypsin and Hodenpyl Serum Therapy. L. B. Bangs, New York.
57 *Paralysis of the Upper Extremity Due to Nerve Injuries. N. Jacobson, Syracuse, N. Y.
58 Recollections of Cholera Epidemics in Russia. G. A. Friedman, New York.
59 *Chemical and Biological Aids in Early Diagnosis of Gastric Cancer. A. E. Austin, Boston.
60 *Some Experiences with Russo's Typhoid Test. F. W. Rolph and W. H. Nelson, Toronto, Ont.
61 Is Alcoholism a Disease? F. H. Barnes, Stamford, Conn.
62 Perirectal Abscess. C. J. Drueck, Chicago.
63 Adenoids in School Children. P. R. Wood, Marshalltown, Ia.

56. **Control of Hemorrhage from Inoperable Neoplasms of Bladder.**—Bangs states that one can relieve the hemorrhage from tumors of the bladder, which are a cause of great apprehension to the patient, by the use of a solution of creolin injected into the bladder. Creolin is an antiseptic with hemostatic properties. The author gives the histories of four cases in which it was used with benefit. A 1 per cent. solution is found to be efficient for this purpose. It relieves irritability of the bladder at the same time that it reduces the loss of blood, and in some cases it reduces the size of the tumor. Although there is no permanent cure to be hoped for by the use of the creolin treatment, still the life of the patient is made more comfortable and often prolonged considerably.

57. **Paralysis of Upper Extremity.**—Jacobson presents the histories of several cases of nerve injuries of the upper extremity with remarks on the diagnosis and treatment. The most frequent cause of partial paralysis of the upper extremity is injury of the musculospiral nerve; this occurs especially in fractures of the humerus, the nerve being torn at the time of the accident, or becoming compressed or adherent to the callus in the process of repair. The nerve can also be injured at a lower point, in the lower third of the arm in fractures. The injury is not always recognized at the time of the fracture, but appears when the splints are removed, with the characteristic wrist-drop and inability to extend the fingers. In two of the cases presented the nerve was adherent to the callus and separation of the nerve from the cicatrix brought about entire recovery. When there are visible changes in the nerve as a result of injury, recovery is slow. A case of fracture of the neck of the scapula with displacement of the head of the bone and adhesions to the brachial plexus caused complete paralysis of sensation and motion. No apparent injury of the nerve occurred, and a few days after operation motion began to return and recovery ensued. When there is complete division of the nerve trunk we have a different condition entirely. In such a case after uniting the nerve-ends six months after the injury good results were obtained; sensation was completely restored, and many muscular movements have returned. If a nerve is reunited soon after injury the immediate results are not better than after remote operation. If suppuration has occurred in the wound with granulation one will not get restoration of function without operation.

59. **Early Diagnosis of Gastric Cancer.**—Austin states that when patients are operated on before there is extensive stasis it is found that free hydrochloric acid is present in many cases. Positive hemolysis was found in twenty-two out of twenty-six cases of gastric cancer, while it was present but once in sixty non-carcinomatous cases of gastric trouble. When pepsin is found in marked amounts in the urine and there is little or none in gastric contents this points to gastric cancer. The presence of tryptophan in gastric contents is an indication of gastric cancer. The bromin test of stomach contents will give a violet color in the presence of tryptophan. In a series of cases tested by the author this test was negative in twenty cases out of twenty-two, and one of these showed a palpable tumor. The tryptophan test is considered by the author the most available test for cancer that can be used in a clinic.

60. **Russo's Typhoid Test.**—Russo's test for typhoid is performed as follows: To 4 or 5 c.c. of the patient's urine add 4 drops of a 0.1 per cent. aqueous solution of methylene blue; mix well and examine against the light; a mint or emerald-green coloration is positive, whereas any bluish tinge renders the test negative. Russo reported the reaction as being unaffected by boiling or by the ingestion of such drugs as calomel, quinin, salol or caffein, and also pointed out that the gradual resumption of the bluish tinge, as the patient advanced in the disease, was a valuable and favorable prognostic sign. During the past year Rolph and Nelson have been employing this test, as a routine proceeding, on most of the cases entering the Toronto General Hospital, and vouch as to its efficacy as a diagnostic aid in typhoid if applied early enough in the disease. Of fifteen patients examined, thirteen gave a positive Russo, eight of these gave a negative Diazo and seven a negative Widal. Two reacted negatively to all three tests. One of these patients furnished a positive blood-culture and had typical symptoms. The other was an unusual case.

There is one important fallibility of the reaction, which at first bothered the authors a great deal, until one of them discovered the cause, viz., that urines containing bilirubin will give a reaction which differs so slightly from the typical green, that they cannot be used in employing the test. Bile should be tested for, and in the event of its presence, the urine should be discarded. The earlier in the disease the more likely and the more typical the reaction. This is very important, as it differs, in this respect, from other laboratory tests, except blood-culture. The slightest tinge of blue must call for a negative interpretation, though experience will often enable one to distinguish the returning blue tint of a convalescent typhoid patient, from that of a normal or non-typhoid urine. The reason of the mint or emerald-green color is doubtful, but it is probably a reduction test, depending on the presence of unknown bodies in the urine. The authors did not find the gradually returning bluish tinge of much assistance in prognosis, as so many of the dangers of typhoid, are, as it were, accidental, and not directly dependent on the severity of the infection.

Journal of Indiana State Medical Association, Fort Wayne

August 15

64 Acute Anterior Poliomyelitis, with Report of Case. C. M. Kennedy, Camden.
65 Exstrophy of the Bladder. B. Van Sweringen, Fort Wayne.
66 Doctor in Politics. W. H. Stemm, North Vernon.
67 New York Summer Campaign Against Infant Mortality. H. K. Moderwell, New York.
68 Improvements at the Bacteriologic Laboratory of the State Board of Health. J. P. Simonds, Indianapolis.
69 Study of Diseases of Children. G. W. Finley, Brazil.

Northwest Medicine, Seattle

August

70 Child Surgery with Special Reference to Some of its Difficult Problems. E. A. Rich, Portland, Ore.
71 Federal Meat Inspection. J. C. Exline, Walla Walla, Wash.
72 Courage on Part of General Practitioner to Depart from Fixed Rules in Medicine and Surgery. J. B. McNerthney, Tacoma, Wash.
73 Importance of Exact Methods of Diagnosis in Pathologic Conditions of the Kidney and Bladder. G. S. Whiteside, Portland, Ore.
74 Practical Treatment of Acute Middle-Ear and Mastoid Disease. R. A. Fenton, Portland, Ore.
75 *Treatment of Hemorrhoids. J. E. Else, Pullman, Wash.
76 Sarcoma of the Choroid. R. L. Nourse, Boise, Idaho.

75. **Treatment of Hemorrhoids.**—After the usual preparation, Else seizes the center of the posterior quadrant at its apex with forceps and makes an incision from ½ inch above its base to the mucocutaneous line. This incision is made eliptical at the summit of the hemorrhoid, in order that the edges of the mucous membrane may fall together after the dissection. The mucous membrane on one side is now seized with an artery forceps at about the center of the incision and, by producing slight traction on the forceps, with the handle of the scalpel the mucous membrane is freed from the hemorrhoidal mass for about one-eighth of the circumference of the rectum. The same is now done on the opposite side, after which the hemorrhoid-bearing area is dissected from the muscularis, ligated and removed. After all has been removed that can be reached through this incision the mucous membrane is closed with a continuous suture of chromic catgut No. 1, extending into the muscularis, in order to obliterate as much as possible of the space between the two coats. The lateral quadrant having the largest hemorrhoidal mass is now attacked in the same manner, then the opposite side and the anterior quadrant last. Often three longitudinal incisions are found sufficient.

After the operation is completed a simple dressing is placed over the rectum and retained with a T-binder. Else never packs the rectum. On the evening of the second day 2 grains of calomel are given in divided doses and the next morning 1 dram of magnesium sulphate every hour until the bowels move. The movement is preceded with an enema of olive oil. After this a semisolid movement is obtained daily. Else has done this operation several times and has yet to see an imperfect result.

Iowa Medical Journal, Des Moines

August

77 Acute Anterior Poliomyelitis, with Report of Cases Illustrating its Occasional Clinical Resemblance to Meningitis. P. Bassoe, Chicago.
78 Infantile Paralysis or Anterior Poliomyelitis. C. E. Ruth, Ponce, Puerto Rico.
79 Progress in Medicine. N. C. Schiltz, Des Moines.
80 Status Lymphaticus. J. Maynard, Adair.
81 Tuberculins and Their Indications. S. R. Klein, New York.
82 Operative Treatment of Varicocele of the Spermatic Cord. A. P. Heineck, Chicago.
83 Clinical Briefs in Medicine. W. L. Bierring and J. H. Peck, Des Moines.

Bulletin of Lying-In Hospital of City of New York

March

84 *Case of Hodgkin's Disease Complicated by Pregnancy. A. B. Davis, New York.
85 Plea for More Practical Laboratory Research. F. E. Sondern, New York.
86 Trichinosis Developing During the Puerperium. Ethmoiditis in a Newborn Infant. W. A. Morgan, New York.
87 Hospital Publications as Factors in Medical Journalism. G. W. Kosmak, New York.
88 *Puerperal Infection, Its Clinical Varieties and Treatment. J. A. Harrar, New York.
89 *Multiple Cesarean Section, with Results in Thirty-Nine Cases Done at New York Lying-In Hospital. R. McPherson, New York.

84. **Hodgkin's Disease Complicated by Pregnancy.**—In December, 1909, the patient, aged 32, v para, began to complain of a burning pain in the right side of the abdomen, which disappeared under treatment for the time being. It returned during the month of February, and continued to the time of admission. This pain was described as dull and aching, extending across the abdomen and into both shoulders, being accompanied at the same time by a feeling of constriction. The pain was always more severe on lying down, so that the patient was compelled to sleep in a Morris chair, which, however, seemed to give relief. About seven weeks before admission to the hospital the patient went to sleep in this chair feeling rather weak but otherwise well and having been able to walk up to this time without any difficulty. On the following morning the patient was unable to get up out of her chair and was never able to walk since that time. At first she could move her thighs and legs but this ability gradually disappeared. The lower extremities were alone affected in this paralysis, the onset of which was unaccom-

panied by chill, fever or other constitutional disturbance, aside from an indefinite paresthesia. After the patient's admission to the hospital she believed that she was able to feel her feet move and also whenever she "felt life," she said that the legs "were jerked." Involuntary defecation and urination were also present. The paralysis seems to have always been of the flaccid order.

The neck did not show any rigidity, but behind the angle of the jaw and extending beneath the right sterno-mastoid muscle there was a small, soft, lobulated, elastic tumor. This was freely movable and did not seem to be attached to the muscles of the skin. There was no infiltration of the surrounding cellular tissues. Behind the right sterno-mastoid muscle the posterior chain of glands was somewhat enlarged but not tender. The lungs were normal. The heart action was rapid and irregular and the area of cardiac dulness extended from the right border of the sternum to a point about 3½ inches to the left of the midsternal line. There was present a short, faint, systolic murmur, loudest to the left of the sternum in the sixth intercostal space. This was probably hemic in character and otherwise the heart sounds were regular and normal in quality. The abdomen was enlarged by an eight-months' pregnancy with the fetus in R. O. A. position. A diffuse acne was distributed over the back of the thorax and a bed-sore as large as the palm of the hand was present over the sacrum.

The legs were both very edematous, and a flaccid paralysis was present extending from the hips to the feet. There was an absolute anesthesia of the skin of both legs including pressure, heat, cold and pain. This area extended upward over the abdomen to a distinctly marked horizontal line 20 cm. above the symphysis and over the back to about the level of the iliac crests. The rest of the body was normal as regards sensation. The knee-jerks and the knee-clonus were absent. The Babinsky and plantar reflexes were doubtful. Occasionally on pricking the skin of the legs or feet, indefinite muscular twitchings occurred and with each twitch pain in the right side of the abdomen was complained of. May 27, 1910, the patient delivered herself in bed without any previous evidences of oncoming labor. The blood examination showed red cells, 3,880,000; leukocytes, 11,600; hemoglobin, 78 per cent.; neutrophils were increased to 88 per cent., small lymphocytes reduced to 10 per cent.; large lymphocytes to 1.5 per cent.; eosinophils, 0.2 to 1.5 per cent.

The Crile hemolysis test for lymphosarcoma proved negative. Von Pirquet's test was then employed twice and proved negative each time. Examination of the sputum was negative as regards the finding of tubercle bacilli. Finally a Wassermann reaction was done, likewise with negative results. It was then decided to remove a small portion of the enlarged gland under cocain for purposes of diagnosis. Sections of this tissue warranted a diagnosis of Hodgkin's disease. The cause of death was toxemia due to miliary abscesses of the kidney, cystitis and absorption from atrophic ulcers. The abscesses and ulcers were caused by paralysis due to pressure on the spinal cord by a Hodgkin's granuloma affecting the lymph-nodes situated in the posterior part of the dorsal canal. It is generally conceded that Hodgkin's disease is not accompanied by the formation of metastatic deposits in the manner which usually results in the presence of malignant new growths. The enlargements take place only in previously existing lymph-nodes and may occur in any part of the body. The condition noted in this case, in which paraplegia was caused by the involvement of the lymphatic structure in the spinal canal, is very unusual and it seems that only one other case of Hodgkin's disease can be found on record in which this complication took place, that single instance having been reported by Osler.

88. **Puerperal Infection.**—The treatment followed in the New York Lying-In Hospital when the temperature rises after labor is outlined by Harrar. Breast, lung and throat conditions, pyelitis, malaria and typhoid are ruled out. A cathartic is given and attention is paid to emptying the bladder. A full condition of either bladder or rectum interferes with proper contraction and drainage of the uterus. When there has been a recent perineorrhapy the wound is inspected and stitches removed if there is much tenderness or edema. The abdomen is examined, noting height of the fundus, areas of tenderness or resistance and whether there is tympanites or rigidity present. If there is a high rise of the pulse-rate accompanying the temperature, cultures are taken from the cervix and uterus whether the lochia is foul or not. At this procedure inspection can be made of the vagina and cervix, especially noting if the latter is distinctly patulous and gaping. Such a condition of the cervix points to retained portions of membrane or placenta. If the pulse rise is slight in comparison with the temperature rise no vaginal inspection or cultures are made. After this preliminary information has been obtained, the bed is elevated sharply at the head and an ice-bag induces a better tone in the uterus, possibly somewhat inmuits bacterial growth, and certainly gives great relief to the patient if there is any pain. If the temperature remains high or recurs, and the gonococcus or the streptococcus be reported, the former treatment is simply continued. If the colon bacillus is found or "no growth" reported and the lochia is foul, give a gentle intrauterine douche. At this time with the continuance of temperature and in the absence of the gonococcus or streptococcus it is permissible to make a gentle digital exploration of the interior of the uterus and remove any fragments of secundines that are present or release possibly retained lochia. This is in no sense of the word a curettage. Harrar says: Never curet, except in incomplete abortions at or before the third month. The further course of the treatment depends on the development of the case and already has been suggested in the description of the various conditions that may arise in bacterial infection of puerperal women.

89. **Multiple Cesarean Section.**—Thirty cases were done for the second time, seven for the third time, and one each for the fourth and fifth times. In eighteen cases there were no adhesions present at all, in eleven very few, in several there were many, in one the uterus was adherent to the abdominal wall and in two cases no note was made. The uterine scar of former operations was not seen in nine cases, was normal (not thinner than the rest of the uterus), in twenty-five cases, was very thin in four cases, and was ruptured in one case, the latter being one in which many adhesions were noted. In the series there were three deaths of mothers; one from anesthesia, occurring on the table before the uterus was opened, the second from sepsis on the third day and the third from pneumonia on the fifth day. One child died of hemophilia on the sixth day. Thus it is observed that the repeated operation offers very little danger over the primary and that in cases in which some obstruction to labor exists, such, for example, as contracted pelves, there is no logical reason why the patient should not become the mother of a normal family with periods of quiescence and comfort between pregnancies, making the operation of sterilization unnecessary and, in McPherson's opinion, as a routine measure distinctly unjustifiable.

Journal of Iowa State Medical Society, Clinton

August

90 Preventive Medicine. G. E. Decker, Davenport.
91 Tobacco, Its Effects. S. Bailey, Mt. Ayr.
92 Care of Children in Private Institutions. M. Bannister, Ottumwa.
93 Classification of Nutritional Disturbances in Infants; Treatment. C. G. Grulee, Chicago.

Journal of Biological Chemistry, Baltimore

August

94 Instability of Glucose at the Temperature and Alkalinity of the Body. L. J. Henderson, Boston.
95 Method for Study of Proteolytic Ferments. P. A. Kober, New York.
96 Analysis of Proteins by Determination of the Chemical Groups Characteristic of the Different Amino-Acids. D. D. Van Slyke, New York.
97 Partial Hydrolysis of Proteins. P. A. Levene, D. D. Van Slyke and F. J. Birchard, New York.
98 Oxidation of the Amino-Acids: Alanine and Tyrosine. W. Denis.
99 Phosphorus Assimilation of Aspergillus Niger. A. W. Dox.
100 Application of the Optical Method to a Study of Enzymatic Decomposition of Nucleic Acids. S. Amberg and W. Jones, Baltimore.
101 Melanin. Pigmentation of the Adult Periodical Cicada (Tibicen Septendecim L.). R. A. Gortner.

Annals of Otology, Rhinology and Laryngology, St. Louis

June

102 Lateral Wall of the Cavum Nasi in Man, with Especial Reference to the Various Developmental Stages. J. P. Schaeffer, Ithaca.
103 Accessory Thyroid Tumors of the Tongue. H. E. Smyth, Bridgeport, Conn.
104 Three Cases of Mental Derangement Associated with Suppurative Otitis Media. E. W. Day, Pittsburgh.
105 Subdural Drainage in Purulent Meningitis and Brain Abscess. Reports of Two Cases with Autopsies. E. W. Day, Pittsburgh.
106 Radical Mastoid Operation. F. Allport, Chicago.
107 Four Cases of Foreign Body in the Esophagus Removed with Aid of the Esophagoscope. S. Yankauer, New York.
108 Two Cases of Foreign Body in the Bronchus; Case of Tumor in the Lower Trachea; Removal by Upper Bronchoscopy. S. Yankauer, New York.
109 A Speculum for the Direct Examination and Treatment of the Eustachian Tube. S. Yankauer, New York.
110 Mastoiditis Without Apparent Involvement of the Middle Ear. C. E. Perkins, New York.
111 Case of Spindle-Celled Sarcoma of the Mastoid. O. Glogau, New York.
112 Mastoiditis Followed by Cerebral Symptoms; Relieved by Decompression Operation. C. E. Perkins, New York.
113 Two Cases of Cerebellar Abscess with Thrombosis of the Lateral Sinus; Operation; Recovery. D. S. Dougherty, New York.
114 Possible Effect on the Auditory Labyrinth of the Ehrlich-Hata Remedy in the Treatment of Syphilis. G. Alexander, Vienna, Austria.
115 Preliminary Report of Some Two Years' Experience in Modified Blood-Clot Surgery of the Mastoid Region, with Presentation of Cases. H. B. Blackwell, New York.
116 Cases of Chronic Suppurative Otitis in Which Ossiculectomy is Indicated. O. A. M. McKimmie, Washington.
117 Three Cases of Removal of Coins from Esophagus of Infants by a Simple Procedure. H. L. Myers, Norfolk.
118 Osteofibroma Occupying the Tonsillar Fossa (Probably of Styloid Process). A. L. Kelsey, Los Angeles.

Therapeutic Gazette, Detroit

August

119 Effect of Sodium Cacodylate and Atoxyl on Experimental Infection with Staphylococcus Aureus. H. Newmayer, Philadelphia.
120 Present Status of Abdominal Delivery in Obstetric Surgery. C. Foulkrod, Philadelphia.
121 Total Paralysis of the Brachial Plexus Due to Traumatism Causing Evulsion of the Component Roots of the Plexus. C. K. Mills, Philadelphia.
122 Subacromial Bursitis. A. R. Allen, Carlisle, Pa.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

Lancet, London

August 12

1 Psychoneuroses. E. D. Macnamara
2 Present Position of Radium Emanation-Therapy in Germany. W. Engelmann.
3 Institutional Hydropathic Treatment as Compared with Spa Treatment for Certain Types of Invalids. T. D. Luke.
4 *Case of Complete Gastrectomy. B. G. A. Moynihan.
5 After-Care. H. W. McConnel.
6 Roentgenotherapy for Excessive Local Perspiration. A. H. Pirie.
7 *New Form of Trochiscus. Sir J. Sawyer.

4. **Complete Gastrectomy.**—In December, 1907, Moynihan recorded a case of complete gastrectomy. The patient was a man, aged 43, who had suffered for two years from gradually increasing distress after food. At the operation a small, greatly thickened stomach was found, and as no healthy part of its wall could be discerned the whole organ was removed. The cut end of the esophagus was stitched to the side of a loop of jejunum, brought upwards through an opening in the transverse mesocolon. The pathologic report stated that the stomach was involved in a neoplastic change of a particular type which has its analogue in the so-called atrophic scirrhus met with in the mammary gland. The patient made a good recovery from the operation.

During the three years and eight months that he lived after the operation he was under constant observation. He was perfectly well up to the early part of the year 1910, when he began to show the evidences of a profound anemia. He was strikingly pale and breathless, and he lost weight. Under treatment, however, he improved, and in May, 1910, his color had returned and he was able to ride and drive and attend to matters on the farm. In August, 1910, he began to fail again; he became easily tired, though he still tried to carry out the greater part of his work. His appetite remained good and he had no indigestion. In October, the signs of anemia reappeared, he grew much weaker, and had to cease work. He began again to lose weight, his appetite vanished, and he vomited occasionally. There were no abnormal signs of any kind in the chest or abdomen throughout the illness. Soon after Christmas, 1910, he had to take to his bed, and he died on the last day of January, 1911. He had gained 38 pounds after the operation and he held the gain for nearly three years. His appetite was good, he experienced the sensation of hunger, and he was able to eat the ordinary foods; but he had to take a rather longer time over a meal than in the days preceding his original illness. The chief points of interest in the case are: (1) Complete absence of any recurrence or dissemination; (2) the very profound anemia; and (3) absence of any striking jejunal dilatation at or near the site of anastomosis.

7. **New Form of Trochiscus.**—Sawyer suggests the assimilation into medical practice of the excellent pharmacologic basis afforded us by the popular modern sweetmeat known as the "chocolate cream." The following prescription illustrates its use:

℞	Gm. or c.c.		
Mentholis	.006		gr.1/10
Olei eucalypti	.003	or	♏ 1/5
Pastæ lactis			
Pastæ nuclei cacao, āā q. s.			

Fiat trochiscus, sec. artem.

Or the pasta lactis in each trochiscus may be medicated by the addition of 1 or 2 grains of borax, or ½ grain of sulphate of zinc, or 1 minim of oil of turpentine, or of oil of cajuput, or ½ minim of oil of anise. Sawyer suggests that the trochisci might be called cremules and, Latinized, cremulæ. When quickness of preparation is to be wished for, unmedicated ones can be medicated readily by remedies which are liquid in their form, by injecting a minim or so of the medicament into the center of a "simple" cremule, by the aid of a hypodermic syringe.

British Medical Journal, London

August 12

8 The Need for Unification in the Public Medical Services. R. A. Lyster.
9 Disease Carriers. D. S. Davies.
10 Medical Examination in Relation to Claims for Damages or Compensation. R. J. Collie.
11 Industrial Diseases of Birmingham. R. W. Edginton.

Journal of Tropical Medicine and Hygiene, London

August

12 *Mode of Transmission of Leprosy. T. L. Sandes.
13 Infant Feeding in the Tropics. W. E. Deeks.

12. **Transmission of Leprosy.**—Considering the enormous numbers of lepra bacilli in the infiltrated or ulcerated skin and nasal mucosa of an active "tubercular" leper and the ingestion of bacilli by certain insects, Sandes suggests that direct contact and transmission by flies, fleas, mosquitoes or other insects are possible modes of spread of the disease; but such infection, if it ever does take place, is accidental and exceptional. Having found acid-fast bacilli answering, as far as our imperfect tests permit, to the characteristics of lepra bacilli in a considerable proportion (about 30 per cent. of specimens of *Acanthia lectularia* up to sixteen days after feeding on lepers) there is reason to believe that this species of insect constitutes a very important agent in the spreading of leprosy.

H. M., aged at the time, 11 years (whose father had been removed as a leper to the asylum some time previously and whom the son used frequently to visit), observed for the first time in the year 1901 a small, red papule under his chin. It enlarged slowly, becoming in area, to use his own simile, about the size of a 6-penny piece. It was indurated and resistant to treatment. It remained thus, slightly raised, hard, and of a reddish hue, for two complete years before any further symptoms appeared. In 1903, he noticed for the first time a bluish puffiness of his cheeks, later slight thickening of his eyebrows, and a diffuse but moderate swelling of the entire countenance. Toward the end of the year tubercles began to appear on his face. Thereafter tubercles continued to appear at irregular

intervals on his face. The glands of his neck became involved. From this time onward the tubercles and other typical signs were of universal distribution and showed a diffuse systematic infection. Sandes believes that the initial pimple, and later tubercle, on the chin would appear to have been the primary lesion, probably caused by the bite of a leprosy-infected bug.

Journal of Obsterics and Gynecology of the British Empire, London

July

14 Pelvic Cysts Due to Spinal Meningocele. J. S. Fairbairn.
15 *Retraction Ring as Cause of Obstruction in Labor. R. Jardine.
16 Dysmenorrhea; Hematometra of One Horn of Uterus Bicornis. E. Maclean.
17 Secondary Abdominal Pregnancy—Fourth Month. G. Fitz-Gibbon.

15. **Retraction Ring Cause of Obstruction in Labor.**—In an obstructed labor, when the retraction ring can be palpated through the abdominal wall, Jardine regards this as a danger signal which must not be disregarded. Prompt and proper treatment must be adopted, or rupture of the uterus will soon occur. If improper treatment is adopted, the rupture may be caused by it. In ordinary cases of obstructed labor the ring is not the primary cause of the obstrucetion, but rather the result. Occasionally, however, cases occur in which the ring is the cause of obstruction. In some of these cases the ring actually forms in front of the presenting part, while in others, it is behind the presenting part, which may be either the head or the breech. In obstructed labors the ring is due to excessive retraction of the main body of the uterus and thinning out of the lower uterine segment. In such cases it naturally follows that there must be a very palpable ledge where the thinned out lower uterine segment becomes continuous with the retracted and thickened main portion of the uterus. By an internal examination, the ring can be recognized before it can be palpated through the abdomen. There is no apparent obstruction from a contracted pelvis, tumor or an abnormal presentation, and yet the labor is delayed, although the uterine contractions are strong and frequent. The uterus may be in a tetanic condition without any relaxation between the pains. On palpating the abdomen, one finds that the presenting part is above the brim of the pelvis, but may not be able to feel the retraction ring. On making a vaginal examination the os is dilated, and the lower uterine segment opened up, but some 3 inches or so above the os, there will be a distinct ledge running round a portion of the whole of the uterine cavity in front of the presenting part. During a pain, this ledge will not relax, but it will contract, and prevent any advance of the presenting part. The membranes may or may not be ruptured. If they are intact, they will protrude into the vagina, and they may even be seen at the vulva. The condition is an exceedingly dangerous one for both mother and child. If it is recognized in time, both may be saved, but in most of the recorded cases, a definite diagnosis was only made when exhaustion had set in, and there was little chance of saving either mother or child. If the condition is recognized in time, and proper treatment is adopted, both mother and child should be saved, in the great majority of the cases.

As for treatment, give the patient a full dose of morphin, and when she is fully under the influence of the opiate, if the ring has not relaxed, anesthetize her deeply, dilate the ring manually and deliver with forceps. If one cannot dilate the ring manually, perform Cesarean section, if the child is still alive. Incision of the ring has been advised, but it will almost inevitably end in rupture of the uterus. If the child is dead, a craniotomy should be done, and delivery by means of an instrument which will thoroughly crush the head. If the shoulders obstruct, cut the clavicles, to allow the shoulder girdle to collapse. Hydrostatic bags have been advised to dilate the ring, but they are useless, as one cannot introduce them high enough to bear on the ring. When the ring is above the presenting part, in the majority of cases, there will be another obstruction, such as a contracted pelvis, a tumor, or a transverse presentation. These cases should be dealt with according to the rules laid down for the treatment of such obstructions.

Glasgow Medical Journal

August

18 Treatment of Inoperable Carcinoma of the Female Mamma. Sir G. T. Beatson.
19 Case of Peripheral Neuritis of Obscure Origin, with Secondary Changes in the Spinal Cord. A. W. Harrington and J. H. Teacher.
20 Review of the Public Health Administration in Glasgow. H. A. M'Lean.

Indian Medical Gazette, Calcutta

July

21 *Treatment of Leprosy by Use of a Vaccine Prepared from Cultivations of the Leprosy Streptothrix. E. R. Rost.
22 *Researches on Endemic Goiter. R. McCarrison.
23 Operation Theater with Accommodation for Twenty Students. W. G. King.
24 Division of the Suspensory Ligament of the Lens, as a Preliminary to Intra-Capsular Extraction of Cataract. V. Nesfield.
25 Averages of Weight and Chest Measurements of 705 Madras Coolies. B. Nicol.
26 Hydrocele. T. H. Foulkes.
27 An Anopheline Allied to Myzomyia Listoni. U. N. Brahmachari.

21. **Vaccine Treatment of Leprosy.**—Five of the twelve patients treated by Rost with this vaccine are now practically cured as far as clinical observation goes, while the remaining seven are all remarkably improved. The vaccine was injected weekly, and temperature records taken almost always showed a rise of temperature varying from 100 to 105 F. Rost has been using all along 1 c.c. of a 1 in 400 dilution of dried culture or the equivalent thereof, and 1 c.c. of a sterilized six-weeks' broth culture. He has found it to be advisable to obtain only slight reactions in nodular cases, whereas in anesthetic cases the higher the reaction, the better the result. The reason for this probably lies in the fact that in the anesthetic cases the bacilli being situated in the nerves, there is not the danger of metastasis that there is in the large masses of the nodular variety. The improvement after vaccine injection may come on gradually some months after injection. With the idea of trying to ascertain the interval at which injections should be given, opsonic indices were taken of treated cases, but the time at his disposal in this laborious research precluded the possibility of arriving at any result which one might rely on, and he had to judge the period from clinical observation of the treated patients. It is also probable that the time at which the vaccine should be repeated varies according to the case.

22. **Endemic Goiter.**—McCarrison has been employing vaccines in the treatment of goiter with good results. A coliform organism grown from the feces of sufferers from the disease has usually been employed for the manufacture of the vaccine. He gives this vaccine in doses of from 150,000,000 to 300,000,000 at intervals of from seven to ten days, and has found that five or six inoculations is all that is required to cause a complete disappearance of the swelling. In some recent cases as few as two inoculations were sufficient. This treatment is popular with the people as it does not involve the taking of medicines two or three times a day, and apart from the slight discomfort at the site of inoculation for twelve hours or so, the patient is free to follow his usual avocations. A portion of the skin of the upper arm is painted with iodin tincture and the inoculation made without any further preliminary sterilization of the skin. An autogenous vaccine is on the whole more useful that a stock vaccine, but McGarrison found the latter to act admirably. He says he cannot as yet attribute any specific action to the organism from which the vaccine is prepared. But so far at least as goiter is concerned, the efficacy of a vaccine does not depend on the specific nature of the organism from which it is prepared. He has employed other vaccines and in some cases with surprising results. One patient was successfully treated with a staphylococcus vaccine. The result could hardly be better. The staphylococcus was taken from a diseased femur in a nongoitrous individual. Three inoculations of 250,000,000 caused the bone to heal and the discharging sinuses to close up, while it took five doses to bring about the change in the goitrous individual shown in the figures. *Staphylococcus albus* is certainly not the cause of goiter, yet a vaccine prepared from it can cure the disease.

Dublin Journal of Medical Science

August

28 Early Diagnosis of General Paralysis. W. H. L. MacCarthy.
29 Use of Atropin as a Preventive of Pulmonary Complications Following Administration of Ether as a General Anesthetic. E. A. W. Henley.
30 *Clinical Reports of the Rotunda Lying-In Hospital, Dublin, 1909-1910. E. H. Tweedy and R. J. Rowlette.

30. Clinical Reports of the Rotunda Lying-In Hospital.—One hundred and sixty-one abdominal sections were performed in the Rotunda Hospital and in twenty cases the abdomen was opened through the vagina. Sixteen of these were vaginal fixations. Fourteen abdominal myomectomies were performed. Several of these necessitated the almost complete division of the uterus, and the recovery in all cases was uneventful. Two of these patients, who had come to the hospital because of sterility, have since been successfully delivered. There were ten Wertheim operations with one death. Tweedy thinks this operation should be performed when practicable in all cases of uterine cancer, whether of the body or cervix. He operated for the cure of complete tears fourteen times, with uniform success after the first operation. There were also performed eighty-five trachelorrhaphies and amputations; fifty-six ventral and sixteen vaginal suspensions; thirty-five hysterectomies; forty-seven vaginal operations; seventy-two operations on the ovaries and tubes. Eleven hysterectomies were done for malignant disease—seven cases of epithelioma of cervix, two of adenocarcinoma of the body and one sarcoma of the body. Only one of these patients, aged 60, died—a case of epithelioma of the cervix in which a Wertheim operation was done. The cause of death was congestion of the lungs. The ages of the others ranged from 35 to 61. Only five of the 504 patients operated on died. The causes of death were sloughing of spleen after subphrenic abscess, abdominal cancer, general peritonitis, congestion of lungs and septicemia. One of the cases of adenocarcinoma of the uterus was of interest in that two ovarian cysts were present, in one of which were masses of the same nature as the tissue in the uterus. Sarcoma of the uterus is a comparatively rare condition. This is only the third specimen met in six years' practice at the Rotunda. The tumor was a large, soft, homogeneous mass, situated, as nearly all these tumors are, in the endometrium of the fundus. It had infiltrated the wall of the uterus, so that it was invading the peritoneum and forming adhesions with neighboring viscera. Microscopically, it consisted of irregular, large, round cells. One of the cases of ectopic pregnancy was of special interest in that it is the first recorded case in Ireland of true primary ovarian pregnancy. Of twenty-one cases of inflammation of the tubes examined, six were tuberculous. The proportion in six years has been fifty-three and nineteen. A point of some interest is the frequency with which cysts of the ovary are related to chronic salpingitis. In four of the cases this year small cysts of the ovary occurred, i. e., in about 33 per cent. of the cases of chronic salpingitis, non-tuberculous in origin. Twenty-five cystic conditions of the ovary were examined; fifteen of these specimens were ordinary multilocular, smooth-walled cysts, one was a simple papillary cyst, and three were malignant papillary cysts; three lutein cysts are in the number, and three dermoids. Two dermoids occurred in one patient. Another dermoid examined was in part malignant. In addition to the three cases of malignant papilloma and this case of malignant dermoid, two other cases of malignant disease of the ovary were encountered. As usual in primary cancer of the ovary, the disease was bilateral. No primary focus of disease elsewhere in the body could be discovered.

Annales de Médecine et Chirurgie Infantiles, Paris

July 1, XV, No. 13, pp. 401-432

31 Tracheobronchial Glandular Disease. (Adénopathie trachéo-bronchique.) H. Barbier.
32 *Diet for Dyspeptic Children. (Régime des grands enfants dyspeptiques.) H. Legrand.

32. Diet for Children Inclined to Dyspepsia.—Legrand's article is a detailed review of food adapted for school children of all ages with recipes for numerous dainty French dishes. He lays great stress on passing certain dishes through a very fine "silk" sieve, especially beans, peas and green vegetables to form a digestible purée. The butter or cream should not be added, he says, until just as the dish is served. Potato should never be allowed a dyspeptic except mashed or in a soufflé. Bread should be allowed only in small quantities to dyspeptic children, and only very well cooked or toasted. Not much raw fruit should be allowed; the preference should be given to stewed fruits or jellies not very much sweetened. The dyspeptic should never drink at the commencement of a meal and very little through the meal, but between meals skimmed milk and kefir may be allowed. A rest after eating, immaculate condition of the teeth and slow chewing are indispensable for dyspeptic children. He adds the yolks of eggs and butter to certain soft mashed vegetables just as they are served, thus increasing the palatibility and nourishing value. He commends in particular frogs' legs and poached yolks alone as particularly digestible. Very little soup should be taken as it has small nutritive value while it dilates the stomach. He expatiates further on the importance of actually fresh eggs for dyspeptics; the more recently laid the more easily digested and the less likely to induce putrefaction in the intestines.

Journal de Chirurgie, Paris

June, VI, No. 6, pp. 617-740

33 *Primary Sarcomas of the Muscles—Myomectomy. (La myectomie large dans certains sarcomes primitifs musculaires.) P. Lecène and L. Mondor.

33. Primary Sarcoma of the Muscles.—Lecène and Mondor report a case each of sarcoma of the muscle of the thigh or leg, both patients apparently cured by extensive resection of the muscles into absolutely sound tissue regardless of possible functional trouble afterward. Twelve similar operations are on record. Only five of the total fourteen patients were women; one was a girl of 17, two about 22 and the others 40 and 58 years old. There has been no recurrence in any case during the three to eight years since the operation, but one patient has died of intercurrent heart disease. As is shown in an illustration, sarcomas in muscle tissue have something like a capsule around them, but it would be a grave mistake to restrict the operation to this; the muscle should be resected far beyond on all sides. The functional disturbances from the mutilation always proved surprisingly slight.

Lyon Chirurgical, Lyons

July, VI, No. 1, pp. 1-120

34 *Inflammatory Postoperative Gastric Tumor. F. Mouisset and X. Delore.
35 Operations on Cervical Sympathetic in Treatment of Exophthalmic Goiter. A. Challer (Continued).
36 Gastro-Intestinal Neurofibromatosis. R. Leriche.
37 *Ultimate Results of Operative Treatment of Exophthalmic Goiter. (Les résultats éloignés des interventions thyroidiennes dans la maladie de Basedow.) H. Alamartine and E. Perrin.

34. Inflammatory Tumor of the Stomach.—Mouisset and Delore report a case of duodenal ulcer in which gastro-enterostomy was followed by development of a large tumor in the epigastrium, hard and irregular, accompanied by anemia. Under medical measures the tumefaction subsided and the patient, a man of 39, has been in fairly good health during the year to date, although the primary trouble was suspicious of cancer and the primary deep tumor in the duodenum is still palpable.

37. Ultimate Results of Operative Treatment of Exophthalmic Goiter.—Alamartine and Perrin summarize 120 cases of exophthalmic goiter in which an operation was done over three years ago as reported by seven different surgeons. In eighty-five cases the cure was complete, that is, in 70.8 per cent., while there was marked improvement in twenty-seven other cases, that is, 22 per cent., and only 6.6 per cent. of the patients were not benefited. Even when the goiter persisted yet the conditions in regard to the circulation were so modified that the special symptoms subsided permanently.

Presse Medicale

July 22, No. 58

38 New Urethrotome. F. Legnen.
39 *Action of Salvarsan on Acoustic Nerve. J. David.

July 26

40 Infantile Scorbutus. A. Broca.
41 *Pneumonic and Bubonic Plague. A. Manaud.

July 29

42 *Cysts of Cerebellum. L. Chauvet and E. Velter.
43 Physiologic and Orthostatic Albuminuria. M. Springer.

44 *Rôle of Interosseous Membrane in Overriding of Fragments in Fracture of Bones of the Leg. P. Saissi.
45 Treatment of Infectious Ulcers of Cornea. A. Oliveres.

August 2

46 Action of Calcium Chlorid as a Diuretic in Nephritis. G. Vitry.
47 Technic of Blood Transfusion. S. Voronoff.

39. **Action of Salvarsan on the Acoustic Nerve.**—David reports one case in which a defect of hearing appeared after the administration of salvarsan for a secondary syphilis. The injection was subcutaneous, a dose of 0.45 gm. (7 grains) being given. The ear symptoms appeared seven weeks later. The author has been able to collect twenty-eight other cases in which the acoustic nerve has been attacked after the administration of salvarsan. The reaction of Herxheimer which has been invoked does not afford a satisfactory explanation, neither is there evidence of a syphilitic relapse in these cases. In David's case both the blood and cerebrospinal fluid were negative to the Wassermann reaction. David suggests that salvarsan has special affinity for the nervous system, due to some product of decomposition and that in cases in which the ear affection comes on late, a storage of arsenic has occurred, probably in the liver. The ear trouble is likely to occur after all methods of injection. Another case has been reported by Beck in which hearing was partially recovered by the use of pilocarpin.

41. **Epidemic Relations of Pneumonic and Bubonic Plague.**—Broca brings forward evidence to show that epidemics of pneumonic plague occur in winter and those of bubonic form are found in summer. Epidemic pneumonic plague does not appear to be known in warm climates. The explanation of these facts appears to lie in the fact that the bacilli of pneumonic plague are highly virulent and are spread by means of human contagion without the intervention of the rat, while in the summer time when the insect carriers of the disease are able to infect the rat population, inoculation on the skin producing buboes is the most likely mode of infection and the epidemics of summer and of warm countries exhibit the bubonic type. Consequently during the summer and in hot climates the prophylactic measure chiefly to be employed is the destruction of rats and their infesting parasites, human contagion playing an insignificant rôle, while in winter quarantine and isolation must receive greater attention.

42. **Cysts of the Cerebellum.**—Chauvet and Velter discuss the symptomatology of cysts of the cerebellum and note that at times such a cyst runs its course without characteristic symptoms, the only complaints being such as are common to brain tumors in general. They report such a case, with necropsy. The cyst had developed in a glioma. Histologic researches on the rest of the cerebellum are promised. The authors suggest that in this way the absence of focal symptoms may be explained.

44. **Rôle of the Interosseous Membrane in Overriding of Fragments in Fracture of the Bones of the Leg.**—Saissi recalls the well-known difficulty of reducing fractures of the bones of the leg in which the fragments override, a difficulty which has usually been attributed to the contraction of the muscles. He has shown by experiment on the cadaver that it is the tension of the interosseous membrane which causes the difficulty. He sawed the bones in two, separating the tibia below and the fibula above in one case, and both bones at a low point in the other. In the first case he found a shortening and deviation of the lower fragment slightly outward so that the upper part of the interosseous membrane was put on the stretch. This was so pronounced that attempts to reduce the displacement by traction in a vertical direction caused the membrane to tear in almost its entire length. In the second case, it was practically impossible to effect the reduction by traction downward. He concludes that the membrane alone is sufficient to hinder the reduction of the overriding fragments in this fracture. With the view of obviating this difficulty, he devised the following maneuver which he has carried out experimentally, but so far has had no opportunity to put into practice. Taking the lower fragment of the tibia as an axis, he makes strong external rotation with the view of relaxing the interosseous membrane, then makes traction downward to draw down the displaced fragment, after which an internal rotation brings the two parts of the tibia into apposition.

Progres Médical

August 5, No. 31

48 *Panoptosis. E. Ledoux and Tisserand.

48. **Panoptosis.**—Ledoux and Tisserand discuss the nature of the syndrome represented by a general ptosis of the abdominal organs, a condition of atony and relaxation of the tissues in general, and nervous reactions, both local and general, a form of neurasthenia. While the theoretic explanations of this condition are generally unsatisfactory, the authors believe they have established in the majority of their patients an insufficiency of the thyroid, and from further observations, they conclude that the essential metabolic change is a demineralization and chiefly, a decalcification of the tissues. Acting on this supposition they have administered lime salts with apparently marked success. They are so convinced of the value of this treatment that they attribute to it a therapeutic diagnostic importance. Every patient suspected of belonging to this class they claim will show distinct, rapid and considerable improvement under recalcification, if the diagnosis is correct.

Archiv für Gynaekologie, Berlin

XCIV, No. 2, pp. 265-597. Last indexed July 22, p. 345

49 Transmission of Antibodies from Mother to Child. W. Wegelius.
50 Cystic Sarcoma of Pelvic Peritoneum Four Years After Vaginal Hysterectomy for Sarcoma of Uterus. E. Goldenstein.
51 Fibrinogen in the Blood in Normal Pregnancy and Puerperium and in Eclampsia. E. Krösing.
52 Cholesterin Production in Myoma of Uterus. (Cystischen Degenerationen im Uterusmyom.) F. Cohn.
53 Fat Absorption in Ovarian Tissue. (Fettresorption im Gewebe des Eierstocks.) E. Strogaja.
54 Experimental Research on Origin of Amniotic Fluid. (Herkunft des Fruchtwassers.) J. Wohlgemuth and M. Massone.
55 Changes in the Blood During Pregnancy and Puerperium. H. A. Dietrich.
56 *Structure and Growth of Carcinoma of Uterus Body. (Bau., Wachstum und histologische Diagnose des Carcinoma corporis uteri; atypische Epithelwucherung der Uterusschleimhaut.) M. af Heurlin.
57 Structure of Ovarian Interstitial Gland. (Die interstitielle Eierstocksdrüse.) A. Schaeffer.
58 Infantilism and Premature Sexual Maturity. (Entwicklungsanomalien bei Infantilismus und bei vorzeitiger Geschlechtsreife.) B. Wolff.
59 Justification of Abdominal Removal of Gravid Uterus on Account of Pulmonary Tuberculosis. M. Henkel.

56. **Cancer of the Body of the Uterus.**—Heurlin's article is based on forty-six cases with anatomic examination. A single center for the growth was evident in all the various types of cancer. There was always a distinct line of delimitation between the growth and the sound mucosa, under the microscope; this fact might aid in differentiating malignant disease in some cases.

Archiv für klinische Chirurgie, Berlin

XCV, No. 3, pp. 493-741

60 *Technic of Rhizotomy for Tabetic Gastric Crises; Five Cases. (Foerster'sche Operation by gastrischen Krisen.) N. Guleke.
61 *Atrophy of Prostate. A. Barth.
62 Amputation for Obstruction of Tibialis Anticus Artery. (Verschluss der Arteria tibialis antica durch Endarteritis bei freier Art. tib. post. Nervenquetschung.) B. Riedel.
63 *Ligation of Branches of Pulmonary Artery to Produce Contraction of Lung. (Unterbindung von Pulmonalarterienasten zur Erzeugung von Lungenschrumpfung.) E. D. Schumacher.
64 Advantages of General Anesthesia with Nitrous-Oxid and Oxygen. (Die Stickoxydul-Sauerstoff-Narkose.) M. Neu.
65 *Chronic Appendicitis and Atony of the Cecum. (Ueber chronisch anfallsfreie Appendicitis und ihre Beziehungen zur Typhlatonie, Coecum mobile und verwandten Zuständen.) P. Klemm.
66 Technic for Exclusion of the Pylorus. C. Girard.
67 *Chronic Appendicitis and Movable Cecum. (Typhlospasmus, Typhlatonie, Typhlektasie.) M. Wilms.
68 *Combined Methods of Treating Cancer. (Leistungsfähigkeit der chirurgischen und combinirten Behandlungsmethoden des Krebses.) R. Werner.
69 Fire-Arm Wounds of Vessels in War. (Die Gefässverletzungen im modernen Kriege und ihre Behandlung.) G. Lang.
70 *Experimental Research on Exophthalmic Goiter. H. Klose.
71 Appendix to Close Defect in Urethra. E. Streissler.
72 Isopral-Chloroform General Anesthesia. V. E. Mertens.
73 Plastic Operations on Esophagus. P. Frangenheim.
74 *"Sliding Hernia" of the Large Intestine. (Erfahrungen uber den Gleitbruch des Dickdarmes.) O. Sprengel.

60. **Rhizotomy.**—Guleke has performed this operation five times in the last year for gastric crises and the immediate

benefit was amazing, he declares. There were no further pains or vomiting and the patients were soon weaned from their morphin. But this gratifying phase did not last more than a month or so before symptoms developed indicating intestinal crises. In one patient they were so severe that Guleke resected further the tenth and eleventh roots. In the others the intestinal crises were minimal or bearable in comparison to the former condition of the patient. The outcome of the rhizotomy is thus liable to be somewhat disappointing, but this possibly may be due to the preexisting chronic morphin poisoning; if the operation could be done before the drug addiction the results might prove incomparably better. The main point now in differentiation is to learn to distinguish between vagus and sympathetic gastric crises, as only the latter are amenable to rhizotomy.

61. **Atrophy of the Prostate.**—Barth has operated in two cases of senile atrophy of the prostate causing severe symptoms, incontinence alternating with retention, the urine infected and catheterization often necessary. Both patients were restored to normal conditions in respect to their urinary apparatus after prostatectomy. The prostate was found shriveled to two small bunches scarcely as large as a bean, with numerous adhesions to the surrounding tissue. The excellent outcome, he remarks, shows that we no longer need feel so helpless in the presence of senile atrophy of the prostate; prostatectomy promises as good results here as with an enlarged prostate. The vesical sphincter is probably suffering from the same atrophy as the prostate, but all trouble from this source is obviated when the fibrous ring at the neck of the bladder is removed. It is possible that a Bottini operation on this fibrous ring might answer the purpose without further intervention. Fuller has reported three cases which seem to sustain this assumption. His patients were between the ages of 37 and 45 and all were cured by merely slitting, through a perineal incision, the hard ring at the neck of the bladder. There was a history of gonorrhea in two of these cases, as also in one of Barth's.

63. **Ligation of Branches of Pulmonary Artery to Act on Lung.**—Schumacher declares that the results of three years of experimental research on cats, dogs, goats and sheep and two clinical experiences have all demonstrated that by shutting off part of the lung from the circulation by ligating its arteries, intense proliferation of connective tissue follows and the part of the lung involved becomes a hard, tough mass. He shows in ten illustrations the best technic for the ligation, and discusses the outlook in its application in treatment of lesions of the lung. There is already, he insists, no doubt of the advantages it offers as a preliminary to resection of a tumor in the lung or a plastic operation on the thorax.

65. **Atony of the Cecum.**—Klemm refers to the cases generally classed as chronic appendicitis but in which the disturbances persist after appendectomy. He ascribes the trouble to some obstruction to the outflow of the secretion in the appendix. The result is a slight inflammation, too mild to induce symptoms but serious enough to injure in turn the serosa of the cecum and impair the elasticity of the bowel wall, which stretches and atony follows as the feces stagnate here. The cecum may not be abnormally movable but its stretched walls sag; the best remedy is to take up a fold in the wall.

67. **Movable Cecum.**—Wilms ascribes the syndrome generally called chronic appendicitis to various anomalies affecting the cecum, abnormal length, size, adhesions, kinking, etc., most of which can be remedied by suturing the cecum in its proper place. In fifty-two cases in which he did this between 1907 and 1909, 75 per cent. of the patients were freed from all their disturbances, including their tendency to constipation. In six more recent cases the cecum was so abnormally large that he concluded to exclude it altogether, and the patients since have been free from all disturbances.

68. **Treatment of Cancer.**—Werner states that at the Heidelberg Cancer Institute the experiences with 2,000 cases of cancer have led to the adoption of the following outline of treatment. A radical operation is the rule whenever possible except for certain forms of sarcomas and epitheliomas which yield to radiotherapy or arsenic. The radical operation is not done with the knife but with the electric needle (de Forest's), especially when conditions interfere with excision far into sound tissue. Equally important is it to keep the wound open so that the Roentgen rays can be effectually applied. Fully 60 or 70 per cent. of all recurrences of cancer occur in the field of operation, and here is where improvement in technic is needed. Active immunization with the patient's own tumor material seems to offer encouraging prospects for warding off metastasis, but further experience is necessary to determine its harmlessness before it can be generally recommended. If a radical operation is not practicable at once, the cancer should be eventrated or exposed in some other way, so that it can be submitted to roentgenotherapy.

70. **Experimental Research on Exophthalmic Goiter.**—Klose injected dogs with the juice squeezed from goiter taken from patients with the exophthalmic form. The animals developed constantly a transient syndrome with the blood-findings of exophthalmic goiter, and exophthalmos in some instances. Comparison of the facts observed in the experiments and in the clinic seems to demonstrate that exophthalmic goiter is not due to excessive but to perverted thyroid functioning. The thyroid seems to be unable to collect and store the iodin in its normal form of iodothyrin but only in the form which might be called the Basedow form. In this form it exerts the same action as inorganic iodin injected into a vein. The theory thus elaborated harmonizes with and explains empirical observations and data.

74. **Experiences with "Slip Hernia."**—Sprengel defines the *hernie par glissement* as one in which a segment of the colon with no mesocolon or a very short one, is drawn into or slips into a hernial sac by the inclusion in the sac of the parietal peritoneum to which it is attached. He describes the mechanism involved and states that three of his thirteen patients in this category died soon after the operation, from peritonitis.

Correspondenz-Blatt für Schweizer Aerzte, Basel

July 10, XLI, No. 29, pp. 689-736.

75 Fetal Atelectasis and Bronchiectasis. E. Buchmann.
76 Thyropriva Tetany Cataract. (Tetanickatarakt nach Strumektomie.) A. Vogt.

Berliner klinische Wochenschrift

July 31, XLVIII, No. 31, pp. 1409-1423

77 *Etiology of Splenic Cysts. O. Küstner.
78 *Tincture of Iodin in Gonorrheal Arthritis. O. Hildebrand.
79 Mutation of Bacteria. Baerthlein.
80 Biologic Action of Mesothorium. A. Bickel and Minami.
81 *Vegetable Albumin in Treatment of Diabetes Mellitus. L. Blum.
82 Visual Field in Caput Obstipum. G. Abelsdorff and E. Bibergeil.
83 Bilateral Paralysis of Accommodation Caused by Salvarsan. Makrocki.
84 Eel-Blood Conjunctivitis (C. ichthyotoxica.) K. Steindorff.

77. **Etiology of Splenic Cysts.**—In a case of splenic cyst cited by Küstner, a woman, aged 39, had noticed a tumor the size of a head in the left hypochondriac region which had caused her considerable pain. This condition had existed for two years when the author decided to extirpate what he considered to be a cyst of the spleen. The result was an entirely successful one. The patient was discharged on the sixteenth day after the operation with a blood count of 23,000 leukocytes, 6,000,000 erythrocytes and 72 per cent. of hemoglobin. Three and a fourth years after the operation the patient is entirely well and is able to carry on her work. There have never been any nutritional disturbances or gland swellings. Four-fifths of the spleen in this case was occupied by the cyst which contained a sulphur-yellow fluid. Echinococcus cyst was ruled out. It is evident then that in this case splenic function had ceased long before the splenectomy was done so that the patient's economy had easily come to do without the spleen, to which fact the author ascribes the good results after the operation. As a cause of the condition in this case it is suggested that a twisted pedicle which was found at the operation was responsible.

78. **Iodin in Gonorrheal Arthritis.**—Hildebrand reports very favorable results from the injection of tincture of iodin into a joint that is the seat of a gonorrheal arthritis. For several

days after the injection the swelling increases notably and then disappears very rapidly. The pain subsides quickly, no new fluid is formed and motion is restored. He has used this method for nine months and thinks well of it. He cautions against using too much iodin. He injects a 5 per cent. solution.

81. **Vegetable Albumin in Diabetes.**—Experimental research and clinical observation have convinced Blum that vegetable albumin is a far more useful component of a diabetic diet than meat albumin. He suggests that the former be substituted for the latter more often than has been done heretofore.

Münchener medizinische Wochenschrift

July 25, LVIII, No. 30, pp. 1601-1627

85 Hyperthyroidism; Frequency and Diagnosis. (Thyreosen.) A. Krecke.
86 Prosthesis After Gritti's Amputation. B. Riedel.
87 Genesis of Atypical Epithelial Growths. (Kausalen Genese atypischer Epithelwucherungen.) L. Wacker and A. Schmincke.
88 *Adrenalin Anemia in Nephritis. H. Pribram.
89 Subcutaneous Syphilis Vaccination of Monkeys. (Syphilisimpfung niederer Affenarten.) G. Baermann.
90 Recovery in Psychoneuroses. C. Römer.
91 *Tolerance of Infants for Morphin. M. Wichura.
92 Tachycardia Occurring During Blood-Pressure Measurement. K. Grassmann.
93 Auto-Infection in Obstetrics. Miller.
94 Conservative (Bier) Treatment of Furuncles of the Face. W. Keppler.
95 Technic of Metreurysis. G. A. Wagner.
96 Physiology and Pathology of the Colon. G. Schwarz.
97 Trauma and Meningitis. H. Merkel.

August 1, LVIII, No. 31, pp. 1657-1682

98 Tuberculosis of the Female Genitalia. (Beziehungen der Tuberkulose zu den weiblichen Genitalien.) H. Sellheim.
99 Vasoconstrictors in Serum in Rachitis, Tetanus and Exudative Diathesis. (Vasokonstringierende Substanzen.) H. Hirschfeld and L. Hirschfeld.
100 Antibodies Formed in Vitro. (Sichtbarer Nachweis von Antigen.) W. Weichardt.
101 *Theory of Menstruation. Görl.
102 Feeding of Nursing Women. W. Birk.
103 Prophylaxis and Treatment of Ophthalmia Neonatorum. A. Hörder.
104 Peptic Ulcer (peptischen Affektionen) in Stomach, Esophagus and Duodenum. G. B. Gruber.
105 Action of Salvarsan in Syphilis of the Larynx. F. Henke.
106 *Salvarsan Accident. C. Mann.
107 *Displacement of Larynx in Tuberculosis. (Kehlkopfverschiebung.) O. Fried.
108 Diagnosis of Hemoptysis. (Erkennung der Lungenblutung.) Mann.
109 Rumpel-Leede's Sign in Scarlet Fever. C. Leede.
110 Technic of Saline Infusion. G. Lefmann.
111 Hyperthyroidism. (Thyreosen.) A. Krecke.
112 Genesis of Atypical Epithelial Growths. L. Wacker and A. Schmincke.

88. **Anemia in Nephritis.**—Pribram is of the opinion that in nephritis the retention of poisonous products serves to stimulate the function of the adrenals, thus leading to the production in excess of adrenal secretion. The retention in turn of this secretion leads to anemia. The author offers this as a solution for the occurrence of anemia in nephritis.

91. **Tolerance of Infants for Morphin.**—Wichura reports the case of a three months' old child whose father gave to it, by mistake about 2 centigrams of morphin. The child went to sleep at once. An hour after the mother became alarmed at the appearance and condition of the child and sought the aid of the author. The stomach was washed out at once and other measures of resuscitation were employed. Sixteen hours after the ingestion of the morphin the child was in a fairly good condition and on the following day had recovered entirely. The author points out that this case illustrates the fact that the usually assumed intolerance in infants for morphin is not always correct. This child was given more than twenty times the dose for an infant of its age and one hour elapsed before any measures to resuscitate were resorted to so that the initial gastric lavage would not contribute in large measure to the recovery of the child. Wichuria therefore believes that he is justified in assuming that this was a case of extreme tolerance for morphin.

101. **Theory of Menstruation.**—Görl reaches the conclusion that the internal secretion of the ovary first appears at puberty and that it leads to the development of the secondary sexual characteristics. At the time of the maturation of an ovum this secretion is changed in slight degree so that it cannot enter into combination with antagonistic substances and then menstruation occurs. A change in the chemical composition of the secretion or disturbances caused by irregular maturation of the ova will produce menstrual disturbances, and even lead to the formation of uterine myomas and cardiac disturbances. In other words, the condition produced may simulate shock. The internal secretion of the ovary is held to be a most important one and is believed to be related to disturbances both general and local.

106. **Salvarsan Accident.**—Three days after the intravenous injection of salvarsan the patient, whose history is given by Mann, became unconscious, with complete loss of all reflexes and sensibilities. This condition lasted for three days when it subsided gradually.

107. **Displacement of Larynx.**—In a case of pulmonary tuberculosis involving the right apex, extensive contraction of lung tissue displaced the larynx, pulling it over as far as the sternocleidomastoid muscle. There was no anatomic change in the larynx or thyroid. The median line of the larynx was directed toward the right, and the left cornu of the hyoid bone was very prominent. The extreme weakness of the patient made an extensive and thorough examination impossible.

Monatsschrift für Geburtshülfe und Gynäkologie, Berlin

July, XXXIV, No. 1, pp. 1-132

113 The Mammary Theory of Eclampsia. (Das Martyrium der voraussetzungslosen Wissenschaft.) H. Sellheim.
114 *Urogenital Tuberculosis. (Ergebnis der Debatte des XIV. Gynäkologenkongresses über die Urogenitaltuberkulose.) B. Krönig.
115 *Symptomatology and Treatment of Retroflexion of the Gravid Uterus. M. Graefe.
116 Glycogen in the Human Placenta. K. Flesch.
117 Simplified and Improved Technic for Extraperitoneal Cesarean Section. H. Sellheim.
118 Serotherapy of Puerperal Sepsis. G. Bohnstedt.

114. **Urogenital Tuberculosis.**—Krönig comments on the wide divergence of views expressed at the recent Gynäkologen-Kongress on this subject, which was the main topic appointed for discussion. It was stated there that over 60 per cent. of the women with urogenital tuberculosis are under 30 and the primary operative mortality ranges from 10 to 13 per cent., while many clinicians have not observed that the general health seems to suffer very much from the urogenital tuberculosis. The point now is to compare the ultimate outcome in the operative cases with that under expectant treatment. This will decide the question. To date only one thing seems established beyond question, namely, that removal of the one kidney affected with tuberculosis gives brilliant results if done in the earliest stages.

115. **Diagnosis of Retroversion of the Gravid Uterus.**—Graefe states that sixty-one of his 200 patients in this class had no disturbances from their retroversion. The anomaly corrects itself in a large proportion of cases, but as it is impossible to foresee whether this will occur, he advises a pessary, especially if there is a history of preceding abortions. Spreading the fingers in the vagina, in front of the pessary, sometimes corrects the retroversion as also the ventral decubitus or knee-chest position. In seven cases the uterus was held down by adhesions, which he was generally able to correct by manipulations from without but a laparotomy was required in one case.

Zeitschrift für Urologie, Berlin

June, V, No. 6, pp. 409-496

119 *Endourethral Measures with Chronic Proliferating Urethritis. H. Lohnstein.
120 *Unreliability of Chromocystoscopy in Diagnosis of Kidney Functioning. M. Roth.
121 Regeneration of Prostatic Portion of Urethra in Connection with Experimental Research on Consequences of Prostatectomy. A. Wischnewsky.
122 Double Pelvis in Right Kidney. (Doppeltes Nierenbecken, das eine infiziert, das andere gesund.) W. Stark.

119. **Chronic Proliferating Urethritis.**—Lohnstein announced a while ago that the reason why gonorrheal urethritis in certain cases proves so rebellious to treatment is because the mucosa has thrown up ridges behind which infection still lurks or actual polyps or papillomas have developed. These proliferations cause no subjective disturbances, but treatment is ineffectual until they are removed or the parts are other-

wise sterilized. He has devised several instruments for visual inspection and cauterization or curetting, and he relates a number of cases showing their advantages and the cures he has realized with them in cases which would previously have been deemed incurable. In one case severe chronic prostatitis with diffuse proliferating inflammation of the posterior urethra simulated chronic retention from enlargement of the prostate. An incision with his incisor-urethroscope in the middle and right lobes put an end to all the symptoms. His treatment failed in four cases, owing to constant recurrence of papillomas without continuous medical supervision.

120. **Chromocystoscopy.**—Roth reports some experiences which show that the indigo-carmin method of testing the functioning of the kidney is less reliable than the old methods of cryoscopy and phloridizin glycosuria. Cryoscopy fails in all cases in which there is no functional disturbance. For these, catheterization of the uterus is the only means of obtaining information. The indigo-carmin method is instructive only in the cases of advanced disease while changes in the freezing-point and the phloridizin method show pathologic conditions in their incipiency in most cases. There is one exception to this, however, he adds; with calculi in the kidney the indigo-carmin method may give valuable information beyond that attainable with any other technic. With enlargement of the prostate and with retention of urine the indigo-carmin method is liable to do good service as a preliminary to operative treatment, but it is seldom necessary as the urine can be drawn with a catheter from the bladder without the need for the test.

Gazzetta degli Ospedali e delle Cliniche, Milan

July 11, XXXII, No. 83, pp. 875-882

123 *Foot Sign of Meningitis. (Il tono del piede.) L. Minervini.

123. **Ankle Sign of Meningitis.**—Minervini has found it possible to elicit a sign of meningitis with the foot which seems to be the equivalent for the Kernig sign and to be the opposite of the ankle clonus. It is much easier to apply the test to the foot than the Kernig technic to the leg, and the interpretation of both seems to be the same. He found the foot tonus, as he calls it, pronounced in a typical case of tuberculous meningitis in a young man, reported in detail, confirmed by necropsy, and in a case of hysteric astasia-abasia, but it was absent in a case of infantile spinal paralysis, its absence here confirming its significance in the other cases. The ankle is grasped with one hand and the toes with the other, and the foot is bent up toward the knee with a forcible push. When the phenomenon does not exist the foot drops back again as soon as it is released, but in case of the pathognomonic reflex contraction, the flexion persists. This ankle tonus is frequently found in inverse proportion to the knee-jerk. It seems to be merely an exaggeration of the normal muscular tonicity, and thus he has encountered it in meningitis, sciatica, spastic tabes and hysteria.

Policlinico, Rome

July 9, XVIII, No. 28, pp. 873-904

124 Cysts in Spermatic Cord. (Contributo allo studio delle cisti connettivali del cordone spermatico.) A. Magi.
125 Treatment of Neurasthenia. (Appunti sulla genesi e sulla cura della neurastenia.) E. Fabbri.
126 Functioning of Remaining Kidney After Neprectomy. L. Dominici.
127 Hysteric Spasm of the Larynx. R. Sabelli.

July, Surgical Section No. 7, pp. 289-336

128 Elastic Tissue in Appendicitis. L. Gargani.
129 Incarcerated Hernia of the Bladder. (Caso di cistocele inguinale puro strozzato.) A. Venturi.
130 Antitoxic Action of Iodin in Tuberculosis. S. Ricci.
131 Pathogenesis of Reflex Anuria with Calculi. Puglisi-Allegra.

Upsala Läkareförenings Förhandlingar

XVI, No. 6, pp. 349-479. Last indexed May 13, p. 1432

132 The Osmotic Pressure During Development of Frog Embryo. (Osmotiska tryckets förhållande hos Rana temporaria under embryonalutvecklingen.) E. L. Backman and J. Runnström.
133 Mechanism of Inhibiting Action of Drugs on the Heart. (Om mekanismen vid hämningsverkan på hjärtat belyst genom farmakodynamiska iakttagelser.) C. G. Santesson.
134 Microscopic Analysis of Lipoids. (Om metoder att mikroskopiskt påvisa lipoider och därmed sammanhängande försök till mikrokemisk analys.) R. Holmström.
135 Three Cases of Focal Reaction in the Lungs Under Tuberculin with Comparison of Physical and Roentgen Findings at Apex. G. Bergmark.

Books Received

Books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

PATHOLOGY AND BACTERIOLOGY [OF THE EYE]. By E. Treacher Collins, F.R.C.S., Surgeon to the Royal London Ophthalmic Hospital, and M. Stephen Mayou, F.R.C.S., Surgeon and Pathologist to the Central London Ophthalmic Hospital. An International System of Ophthalmic Practice. Edited by Walter L. Pyle, A.M., M.D., Philadelphia, Member of the American Ophthalmological Society. Cloth. Price, $4 net. Pp. 558, with 237 illustrations. Philadelphia: P. Blakiston's Son & Co., 1911.

STUDIES ON FRUIT RESPIRATION. 1. The Effect of Temperature on the Respiration of Fruits. 2. The Effect of Picking on the Rate of Evolution of Carbon Dioxid by Peaches. 3. The Rate of Accumulation of Heat in the Respiration of Fruit Under Adiabatic Conditions. By H. C. Gore, Assistant Chemist, Division of Foods. Bull. 142, Bureau of Chemistry. U. S. Department of Agriculture. Paper. Pp. 40, with 17 illustrations. Washington: Government Printing Office, 1911.

A TEXT-BOOK OF MEDICINE. By G. Dieulafoy, Professor of Clinical Medicine at the Faculté de médecine de Paris. Authorized English Translation from the Fifteenth Edition of "Manuel de pathologie interne" by V. E. Collins, M.D., M.R.C.S., L.R.C.P., and J. A. Liebmann, Ph.D., M.A., LL.D. In two volumes. Volumes I and II. Cloth. Price, $12. Pp. 2081, with 105 illustrations. New York: D. Appleton & Co., 1911.

THE GOULSTONIAN LECTURES ON THE SENSIBILITY OF THE ALIMENTARY CANAL. Delivered at the Royal College of Physicians on March 14, 16 and 21, 1911. By Arthur F. Hertz, M.A., M.D., F.R.C.P., Assistant Physician and Physician in Charge of the Department for Nervous Diseases, Guy's Hospital. Cloth. Price, $1.50. Pp. 83. New York: Oxford University Press, 1911.

CARBONIC-ACID SNOW AS A THERAPEUTIC AGENT IN THE TREATMENT OF DISEASES OF THE SKIN. By R. Cranston Low, M.B., F.R.C.P., Assistant Physician to the Skin Department, Royal Infirmary, Edinburgh. Cloth. Price, $1.50 net. Pp. 117, with illustrations. New York: William Wood & Co., 1911.

DISEASES OF THE STOMACH, WITH SPECIAL REFERENCE TO TREATMENT. By C. D. Aaron, Sc.D., M.D., Professor of Gastro-enterology and Adjunct Professor of Dietetics in the Detroit College of Medicine. Cloth. Price, $4.75 net. Pp. 555, with 42 illustrations. Philadelphia: Lea & Febiger, 1911.

THE FOOD LAWS OF THE UNITED KINGDOM AND THEIR ADMINISTRATION. By F. L. Dunlap, Associate Chemist and Member of the Board of Food and Drug Inspection. Bull. 143, Bureau of Chemistry. U. S. Department of Agriculture. Washington: Government Printing Office, 1911.

THEORY AND PRACTICE OF THYROID THERAPY. A Book for General Practitioners. By Herbert Ewan Waller, M.R.C.S. England, L.R.C.P. London, Honorary Anesthetist Birmingham Dental Hospital. Cloth. Price, $2 net. Pp. 154. New York: William Wood & Co., 1911.

LABORATORY MANUAL OF PHYSIOLOGY. By Frederick C. Busch, B.S., M.D., Professor of Physiology, Medical Department, University of Buffalo. Second Edition. Cloth. Price, $1.50 net. Pp. 212, with 46 illustrations. New York: William Wood & Co., 1911.

FORTIETH ANNUAL REPORT OF THE MANAGERS OF THE MIDDLETOWN STATE HOMEOPATHIC HOSPITAL AT MIDDLETOWN, N. Y., TO THE STATE COMMISSION IN LUNACY. For the Year Ending Sept. 30, 1910. Paper. Pp. 70, with illustrations.

A MANUAL OF MATERIA MEDICA FOR MEDICAL STUDENTS. By E. Quin Thornton, M.D., Assistant Professor of Materia Medica in the Jefferson Medical College, Philadelphia. Cloth. Price, $3.50 net. Pp. 525. Philadelphia: Lea & Febiger, 1911.

CLINICAL LECTURES ON THE ACUTE ABDOMEN. By William Henry Battle, F.R.C.S., Surgeon to St. Thomas's Hospital. Cloth. Price, $1.50 net. Pp. 107, with 10 illustrations. New York: William Wood & Co., 1911.

HYGIENE FOR NURSES. Theoretical and Practical. By Herbert W. G. Macleod, B.Sc., M.D., M.S. Edin. Cloth. Price, $1.50 net. Pp. 233, with 49 illustrations. New York: William Wood & Co., 1911.

NINETEENTH REPORT OF THE GERMAN HOSPITAL, 3303 FRANKLIN AVE., CLEVELAND, OHIO. From April 1, 1910, to Jan. 1, 1911. J. S. Kosower, Superintendent. Paper. Pp. 39, with illustrations.

FORTY-FOURTH ANNUAL REPORT OF ST. PETER'S HOSPITAL, BROOKLYN. Under the Charge of the Sisters of the Poor of St. Francis. For the Year 1910. Paper. Pp. 16, with illustrations.

TWENTY-FIRST ANNUAL REPORT OF THE BOARD OF MANAGERS OF THE WEST PHILADELPHIA HOSPITAL FOR WOMEN, 4035 Parrish St. January, 1911. Paper. Pp. 40, with illustrations.

FORTY-SECOND ANNUAL REPORT OF THE WOMAN'S HOSPITAL AND INFANTS' HOME. For the Year 1910. Paper. Pp. 25, with illustrations. Detroit, Mich., 1911.

ANNUAL REPORT OF THE JEWISH HOSPITAL ASSOCIATION OF CINCINNATI, OHIO, OCTOBER, 1910. Paper. Pp. 48, with illustrations. Samuel Mayer, Secretary.

FORTY-FIRST ANNUAL REPORT OF THE BANGOR CHILDREN'S HOME. Reports read at the Annual Meeting, Jan. 3, 1911. Bangor, Me. Paper. Pp. 18.

ANNUAL REPORT OF THE HOSPITAL OF THE SACRED HEART, MANCHESTER, N. H. For the Year 1910. Paper. Pp. 36, with illustrations. 1911.

FORTY-SEVENTH ANNUAL REPORT OF THE CARNEY HOSPITAL, SOUTH BOSTON, MASS. For the Year 1910. Paper. Pp. 62, with illustrations.

EIGHTEENTH ANNUAL REPORT OF THE BEVERLY HOSPITAL, BEVERLY, MASS. For the Year Ending Dec. 31, 1910. Paper. Pp. 53

REPORT OF THE TRUSTEES OF THE CAMBRIDGE HOSPITAL. For the Year 1910. Paper. Pp. 45. January, 1911.

THE ANNUAL REPORT OF ST. JOSEPH'S HOSPITAL, WILLIMANTIC, CONN. 1909-1910. Paper. Pp. 44.